

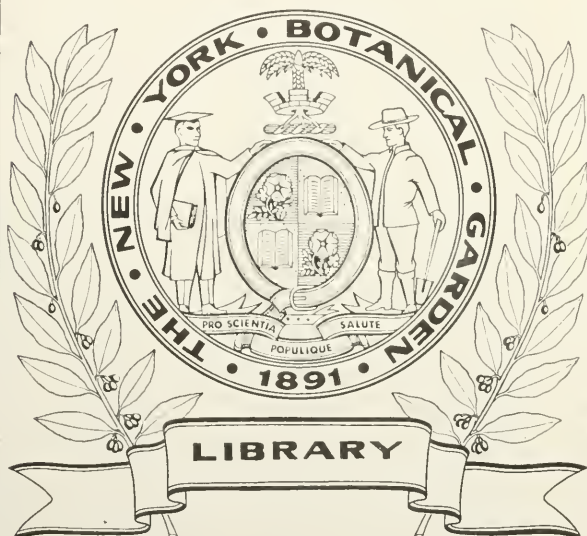


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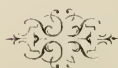
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A COMPLETE MANUAL

FOR THE MANAGEMENT OF THE

GARDEN, GREENHOUSE, AND CONSERVATORY.

ILLUSTRATED
WITH COLOURED PLATES AND WOOD ENGRAVINGS.



LONDON:
GROOMBRIDGE AND SONS.

1894

THE FLORAL WORLD

AND

GARDEN GUIDE.

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GARDEN HOLLIES.

(With Coloured Illustration.)



Y the term "Garden Hollies," is to be understood those that are peculiarly distinct and ornamental, and therefore best adapted for the embellishment of gardens. Any and every holly has a claim of its own to our admiration. But as there are about eighty varieties in cultivation (at all events we have about that number, and believe in the existence of a few more that we have not yet secured), the amateur who has no taste for mere curiosities, will prefer a selection to a collection, and it is part of our duty to advise upon the subject. The common green holly (*Ilex aquifolium*) is good enough for a garden certainly, but we shall not include it in our selection, for from our point of view it is a hedgerow and park tree, and should not be planted in the garden in any quantity, for the simple reason that hollies of a more decidedly ornamental character may be found. If, turning from this, the cheapest and most common of all hollies, to another which is not cheap and somewhat scarce—namely, the variety named *rotundifolia*—we should say that here again is an undesirable holly, for though scarce and interesting it is not beautiful. It is a botanist's or collector's holly, and for decorative purposes is of the smallest value as compared with others that are cheaper, as well as more beautiful. Some of our friends will, perhaps, be surprised to learn, that when we have thrown out the least beautiful of the varieties, there remain about sixty that are so thoroughly good that it is quite a difficulty to reduce their number. What a proof does this afford of the intrinsic value of the holly as a garden tree! It is indeed the noblest evergreen tree we possess, and actually surpasses the ivy in the number of varieties that are really distinct and extremely beautiful.

We must endeavour to get over the difficulty of eliminating the inferior sorts, so as to present to our readers the names of those that are pre-eminently beautiful, and therefore most of all to be desired for garden purposes. We may consider them under four heads—1. Green Hollies; 2. Golden Hollies; 3. Silver Hollies; 4. Miscellaneous Hollies.

GREEN HOLLIES, considered as a class, should comprise varieties of *I. aquifolium* only. The common green holly is to be excluded for reasons already stated, and we begin selecting therefore with *Laurifolia*, which grows freely, flowers exceedingly freely, but is rather shy in producing berries. The leaves of this variety are mostly without spines, but a few show both lobes and spines partially suppressed, and others again have lobes and spines fully developed. Its rich dark green colour is one of its most distinguishing features. *Latispina* is an extravagant form, the leaves broad, with round lobes that terminate in terrific spines. This is a fine shrub, slow in growth. *Tortuosa* is like *laurifolia*, but with twisted leaves, which are peculiarly handsome in winter, when their greyish undersides show in contrast with their black green upper surfaces. The small leaved *Myrtifolia* is extremely pretty, the growth being dense and the leaves the size and shape of those of the common myrtle. *Donningtonensis* is in much the same way, but so distinct that it really looks unlike a holly, the stems being purple, and the narrow leaves a purplish tinted green. To forget *Shepherdi* would be a great injustice to the amateur, for it is the grandest of the green hollies, the leaves being large and almost flat, with purplish footstalks and a splendid habit of growth. *Lutea* is the name of a pretty green leaved ivy that bears abundance of yellow berries; there are several others with yellow berries, but we select *Lutea* as the best of them all. To these may be added as first class garden trees, *Cornuta*, which has angular horned leaves, *Scotica*, *Fisheri*, and *Ovata*.

GOLDEN-LEAVED HOLLIES are numerous, but several of them, as for example *Angustifolia aurea*; and all but one of the "Milkmaids," which are largely propagated in the nurseries, are bad, decidedly bad, as compared with others that are equally cheap and free to grow. The best of this class is *Golden Queen*, a glorious golden ivy, growing in the most elegant manner with leaves of average size, broadly margined with a rich deep golden variegation. *Wateriana*, or "Waterer's holly," is another beauty of this section; the leaves are smooth and narrow, with very narrow margin of deep yellow, the growth very dense and the colouring effective. A distinct and pretty variety is that named *Handsworthiana*, the leaves of which are distinctly and sharply serrated with broadish margin of canary yellow or amber variegation. Finally, to close this section, there are, as remarked above, several of the "Milkmaid" series that are not to be desired, but one, named *Best Milkmaid*, is grand in style of growth and colouring, the leaves having a broad central band of deep gold, which renders a good tree of it conspicuous and splendid.

SILVER-LEAVED HOLLIES also comprise several quite second-rate varieties. The best of them is *Silver Queen*, which grows fast and makes a singularly chaste pile of variegated leafage to light up the front of the shrubbery, or give dignity to an entrance court. Less striking as to colour, but in some respects more beautiful, is *Argentea*, which is distinguished by the glitter of its smallish leaves, which are narrowly margined with cream colour. Where colour is everything, *Silver Queen* is the best, but for frequent close inspection, *Argentea*

is perhaps to be preferred. A near relative of the last named is *Argentea marginata*, which has a broader margin and is less glossy. Lastly, we name *Argentea variegata* as good, though not one of the best.

MISCELLANEOUS HOLLIES comprise a few very pretty things. The well-known *Balearica*, which has rather large, almost smooth, leaves, a somewhat spare habit of growth, and produces plenty of scarlet berries, is one of the finest. *Tarago* is a grand South American species with large grass-green leaves. It is rather tender, but good enough for a wall, and in general aspects resembles a Magnolia. *Crenata* is the smallest leaved species we have, and an extremely pretty miniature shrub. It is a native of Japan, and as hardy as other evergreens from the same country. Of this there is a variegated variety called *Crenata variegata*, the tiny leaves of which are slightly splashed with creamy variegation.

In all the large nurseries there are good collections of hollies, but I have not yet seen the equal of those in the nurseries of Messrs. Veitch & Son, of King's Road, Chelsea; the Coombe Wood nursery of this firm is perhaps the prettiest nursery in the country, and it is certainly remarkably rich in hollies, ivies, cotoneasters, and other of the most beautiful garden trees and shrubs. As hollies are costly, and grow slowly, it is important to treat them with extra care in the first instance. Therefore, we advise careful preparation of the soil, and the filling in over the roots with clean sandy loam or gritty leaf mould (free from fungus and half rotten sticks), and that all planting be finished by the middle of April at latest. The best time to plant hollies is from August to October, but careful spring planting will answer nearly as well, unless the summer sets in unusually early and unusually hot and dry.

S. H.

SHOWY FLOWERS FOR WINTER DECORATION.

BY JOHN BURLEY, F.R.H.S.,

Hereford Road Nursery, Epswater, W.



IN a recent number of the FLORAL WORLD I had the pleasure of contributing a few notes on the cultivation of conservatory plants adapted for winter decoration, and I now purpose making a few remarks on useful winter flowering plants which require the temperature of an intermediate house for their cultivation. The cultural hints will necessarily be very brief, but it is hoped that they will be sufficient to convey a clear idea of the requirements of each class of plants mentioned.

I will commence by observing that there are three charming winter-flowering plants that have been for a long period great favourites of mine. The first is *Burchellia capensis*, a bushy-growing plant with dark green leaves and scarlet flowers; the latter being freely borne in trusses at the ends of the shoots. The next is *Pentas carnea*, belonging to the same race. This has light green foliage and

numerous trusses of delicate rosy-pink flowers. The third is *Hebelclinium ianthinum*, with large foliage, and trusses of pale blue flowers that are borne at the ends of the shoots, and resemble in appearance enormous blue ageratums. These three plants always come into flower in mid-winter, and make first-rate subjects for cutting from for bouquets and decorations. They are easily grown in a mixture of sandy peat one half, the other half loam and leaf-mould. The mixture is to be used in a rough state for flowering plants, but for young growing plants, finer. Cut them back in March, after they have done blooming, and partly remove the old soil from the roots without damaging them, and repot at once. Keep close and warm until they have broken out freely with young shoots; and then water liberally and sprinkle freely overhead, to ensure a clean and sturdy growth. When the young shoots are about three inches in length, the plants may be removed to a more airy situation, and as close to the glass as possible, so as to well ripen the wood and set the flower-buds for the next winter. During the summer they will have to be just shaded from the midday sun, and the cultivator must see they have plenty of water and air.

The *Bouvardias* are good winter-blooming plants, and, as for colours, they offer abundant variety, from pure white to a brilliant crimson. *Leiantha* is a very bright scarlet, better than Brilliant; *Leiantha grandis* is carmine-orange, *Delicata* is a soft rose, *Flava* is a large yellow, *Jasminioides*, a pure white; *Rosea Salmonia* is a bright rose shaded with salmon; *Treelendi* is pure white. Now these will be enough in variety, and, as they are all winter-blooming kinds, will answer our purpose well. Anyone who can grow a geranium well can grow these, and the same soil suits them; but, to ensure their blooming at this season, do not stop the young wood after August; from that time let it run on to form the blooming wood. But, all the spring and summer before that time, let the wood be occasionally pinched back, so as to encourage the formation of short stubby plants.

The *Epiphyllum truncatum*, with its varieties of rose and scarlet, are very attractive objects from the end of November until late in the spring. Plants grafted on stems about 18 inches to 2 feet high, form quite umbrella-shaped heads, and produce hundreds of blossoms. When grown thus they form splendid objects. Smaller plants, when in bloom, show themselves well off when placed in a hanging basket; for the blooms are seen to the best advantage, as they are naturally of a pendulous habit. They require a mixture of sifted lime-rubbish, sharp sand, yellow loam, and leaf-mould, in about equal proportions. If large plants are required, they must have plenty of root-room when they are growing, and be moderately supplied with water. Do not allow them to become hard and dry, for if you do they will not flower satisfactorily. They require to be kept in a hot sunshiny corner in the greenhouse all the summer.

The following six varieties are very fine: *Russellianum*, *Ruckerianum*, *Aurantiacum*, *Violaceum*, *Magnificum*, *Spectabile*. They require a good warm place to open out their flowers well in winter, and a cool stove is the best place for them.

The *Gesneras* are very useful for the winter ; the spikes of orange-scarlet flowers contrast admirably with the velvet-like foliage. The best way to grow gesneras is as follows. After the plants have quite done blooming, and the foliage has gone off to a copper-brown hue, water should be quite withheld. They should be removed to the top stage or shelf of a greenhouse, where they will be warm and dry, for quite two months. This plan secures the season of rest that they should always have. After the lapse of this time, they may be taken down and turned out of the pots, and the old soil should be shaken from them, the tubers should be separated from one another, and planted separately in small pots, to start, in sandy peat and leaf-mould. After potting they will require to be kept in a warm house, and close to the glass ; they will soon begin to grow, and as they require it, let them be shifted into larger pots, taking care that the soil at each shift is coarser in texture than before, to keep them growing in sufficient robustness. A little bottom-heat helps them on immensely. They should be kept shaded during the hot days of summer, and by no means let them be watered overhead, for it spoils their chief beauty, which is in their foliage. The tubers can be started at any time of the year where there is any convenience to grow them, for they may be had in flower in the middle of the summer as well as at mid-winter.

The cultivation of *Poinsettia pulcherrima* must be briefly described. After they have done blooming in January or February, they should be placed on one side, say under the greenhouse stage, or any similar place where they can be kept dry and safe from frost. There let them have a season of rest until April ; by that time they will have dried off to about half-way down the stem. Cut away the dried part, and remove the plants to a warm moist place. This will encourage them to break from all the eyes very freely. Let them be kept growing until the young shoots are about two or three inches in length, then have some small pots ready with moss in the bottom to quite a third of the depth of the pot, which fill up with a light very sandy mould ; gently water it to settle it down, and it is then ready for use. The cutting should be removed with a sharp knife, and be instantly inserted in the pot, to keep the wound from bleeding. They should be at once removed to the stove or propagating frame, where they should have the benefit of a little bottom heat, and they should also be kept shaded for a few days from the sun. In about a fortnight or so they will be rooted nicely ; then gradually accustom them to light and air until they are well rooted and beginning to grow, when they should be removed to a warm position and near the glass. After they have been repotted they should be kept in a warm house, and close to the glass, and allowed plenty of air. By this course of treatment you will secure nice stocky plants ; they will require no other care from this stage but watering and potting on as they grow. They like a soil consisting of equal parts of hazel loam, rotten manure, and leaf-mould, with just enough gritty sand to keep the same free. It will be necessary to keep a fire in the house, especially at night, after September, and so on until they form their flowers in November.

HINTS ON DINNER-TABLE DECORATION.

BY MISS A. HASSARD,

St. Ronan's, Upper Norwood.



THE subject of Dinner-Table Decoration is one which has been treated by many writers, but is always interesting. Therefore it is I am again induced to say a few words upon it, trusting they will prove useful to the readers of the FLORAL WORLD.

According to the length and width of your table, the size and number of your stands and pot-plants must be regulated, so I cannot well give any advice on this subject. Let us, therefore, turn to the forms of the stands. These are numerous, but out of all I have seen there are only four I can say I admire; for they do not intercept the view, are easy to fit up, and not expensive to purchase. They are as follows: the true Marchian; the Marchian with trumpet out of top tazza; a high, slender trumpet, with three curved trumpets branching from it; and a large tazza with single trumpet rising out of the centre. These shapes, when fitted up lightly, look very effective. I speak from experience, as I have them in constant use. It is quite a mistake having flower-stands or vases engraved. If it is on the flat part of the dish, it will be covered with sand; and if the trumpet, the stems of the flowers will quite do away with the effect. Care should be taken when purchasing to see that the glass is bright and clear, and free from all spots or flaws. When going to arrange a stand, see that the glass is well polished, for half the effect depends on the brightness and glitter of the crystal, which sets off flowers to better advantage than any other material. To keep glass bright, it should be washed with nothing but cold water.

Having said so much for the shape of the vases, I shall now turn to the materials for keeping the flowers fresh. Some use sand, others moss, and some water. I myself prefer for the dishes or tazzas sand, as it keeps the flowers quite as fresh as the moss, and they stand firmer in it. The trumpets, of course, I always fill with water. In arranging Marchian stands, many mix fruit and flowers in the lower tazza, but this is a plan I do not approve of: I like to see the fruit in separate stands or baskets, as when mixed with flowers in the centre-piece, if the fruit be helped from it, the whole effect is quite spoiled. Single flowers or button-hole bouquets, in specimen-glasses, opposite to each person, look very effective; but these tiny bouquets should be of very choice flowers. Pot-plants have also a good effect on a table, but I prefer ferns or foliage to flowering varieties when in conjunction with stands. Suppose there were three Marchian stands on a table: between the centre one and the two ends I should place a nice-grown specimen of Maiden-hair. If only a centre-piece was employed, say that with the curved trumpets above mentioned, I should place top and bottom a pair of nice crotons or palms. Good specimens of flowering plants look very handsome on the sideboard, but if used along with stands of

flowers on the table, they give too much colour, and make almost a glare; whereas the green of the ferns tones down the mass of colour and relieves the eye. The rough pots should be dropped inside ornamental ones, and over the surface of the soil silver-sand or fresh green moss should be spread.

The varieties of cut flowers employed on the table must be chosen according to the season of the year; but in selecting it should always be remembered if they are to be used in artificial light or daylight. If the former, care should be taken that they are of tints that will not change, as most of our mauves, purples, yellows, etc., change when placed under artificial light sadly for the worse. As a rule, for night work, they should be avoided. If possible, all flowers (stove and greenhouse varieties) should be cut off plants that have been well cooled off, as otherwise they are liable to flag. In some cases this is impossible, but as far as one can they should avoid using those that have been grown in great heat. The same way with ferns; they should be cut off plants in a cool house; old fronds should be selected, particularly of *Adiantum cuneatum* (the lightest by far of this class for mixing through flowers), as, if young, shortly after being cut they will shrivel up, and their beauty is gone. The ends of the stems of all flowers and ferns should be cut in a slanting form with a sharp knife, as this allows them to draw up moisture more freely than if crushed, as they would be if they were broken off or cut with a pair of scissors. The more moisture they draw, as a matter of course, the longer they will remain fresh. Before fixing fern fronds in their places, I always dip them in a can or basin of water with the chill taken off; after having dipped the fronds, I give them a gentle shake, which apparently removes all the water, but a dampness remains, which tends to keep them fresh. Wild grasses have been much used lately amongst cut flowers, and I consider, if used judiciously, they give a very light and elegant appearance. A few notes on this subject will be found in the *FLORAL WORLD* for September, 1872.

The decoration of fruit on the dinner table is that which next comes under our notice. But like selecting the flowers, it must depend on what you can command. Ferns and foliage to associate with fruit are far the most elegant, though I know many people like a floral dressing better; but this depends on taste. Flowers or foliage must be selected that will stand fresh longest, as, when grouped with fruit, there is no wet sand or moss to keep them refreshed. A very good plan is, if you have to keep them for any long period, to get a number of little glass tubes, such as are sold for coat flowers, fill them with water, place the stems of your flowers or foliage in them, and then conceal the little tubes amongst the fruit. This is very easily done, and your little bouquets will keep fresh for a very long time. Many of our out-of-door plants are quite as effective for the decoration of fruit as our indoor ones. Take for example the variegated maple, or white negundo, as a substitute for *Cyperus alternifolius*, the tinted leaves of the Virginian creeper for coleus, and so on. If some of the fruit be in china or glass baskets, a spray of small variegated ivy looks well twisted

round the handle ; light coloured flowers or foliage should be used with dark fruits, such as grapes, plums, etc., and the reverse with light fruits.

The effect of a dinner-table does not at all depend on the gorgeousness of the flowers and fruit employed. But I do not wish it to be supposed that I condemn stove or rare varieties, and would use commoner kinds in preference. What I mean is, taste is what is required ; and that a few commoner kinds arranged with taste and lightness, will look far more effective than expensive varieties put together in a clumsy manner. As an instance of this I may refer to the drawing-room stands to which the first, second, and third prizes were awarded at the Provincial Show of the Royal Horticultural Society, held at Birmingham in June, 1872. The flowers used in the first-prize arrangement were white water-lilies, white sweet peas, blue corn-flowers, white rodanthe, ferns, and wild grasses. That of the second prize consisted of pink cactus flowers, white water-lilies, pink and white rodanthe, ferns and grasses. The third prize consisted of white water-lilies, white rodanthe, and oats. Many of the vases to which no prizes were awarded contained orchids and other choice and costly flowers. I have only mentioned these as a confirmation of my theory, above expressed.

At present there is no lack of flowers in Covent Garden Market ; amongst others, the following are in season : camellias, chrysanthemums, arums, begonias, bouvardias, cyclamens, eucharis, heaths, primulas, pelargoniums, Roman and other hyacinths, roses, etc.

I shall describe a centre-piece that I should arrange out of the above, selecting for my stand the Marchian with trumpet out of top tazza. Round the edge of the bottom tazza I should place mixed varieties of ferns, laying out on the table cloth ; I should then fill in with white chrysanthemums, scarlet pelargoniums, and maiden-hair fern. Up the glass stem which supports second tazza I should twine a spray of variegated ivy. Round the edge of the upper tazza I should place some drooping fronds of maiden-hair, and some blooms of *Lapageria rosea* ; I should then put in four white camellias, some scarlet Bouvardias and maiden-hair. In the trumpet, Roman hyacinths, scarlet Bouvardias, maiden-hair, and wild grasses. This arrangement would do for either artificial or daylight use, though just now dinner-table decorations are only required for the former. In some future numbers of the FLORAL WORLD I shall give hints on other styles of Floral Decorations.

THE WOOLLY MARIGOLD..



I have given this name to a pretty composite, the botanical name of which is *Andryala Mogadorensis*, in order that it may be the more easily remembered, because we expect and hope to see it become a popular and useful bedding plant. Dr. Hooper, who has figured and described the plant in the "Botanical Magazine,"

(t. 6010), says it forms snow-white masses on a little rocky islet in the bay of Mogadore, on the Western Morocco coast, whence it was obtained by Mr. Maw of Broseley. It is an undershrub, with leaves of variable shape, wholly covered with a thick snow-white tomentum;



THE WOOLLY MARIGOLD.

the flowers are yellow and may be likened to those of a marigold or larger raywort. It will probably rank with such things as *Gnaphalium lanatum*, *Centaurea ragusina*, and *Salvia argentea*, for the sake of its snow-white leafage, and will require only the usual treatment of tender bedding plants.

CULTURE OF THE GLADIOLUS.

BY M. EUGENE VERDIER.



HE garden gladioli are descendants from *G. gandavensis*, which is itself the offspring, by an unknown cross, of *G. psittacinus*. In common with its near and remote ancestors, the garden gladiolus is not difficult of cultivation.

It is sufficient to plant it in any ordinary soil which has been well dug over some time beforehand. It dislikes close, argillaceous soils, and, as a rule, does best in those that are moist and sandy. Successive plantings in the same ground are injurious to it. The locality should be changed every year, so as not to return to the same spot until after the lapse of several years, during which the ground should be well manured with cow or horse manure, or else with night-soil or street-refuse, according to the degree of humidity in the soil. For dry soils manure from the cow byre is best, but horse-dung or street-refuse is best for damper ones.

Open-air planting should be performed, at successive intervals of a fortnight, from the end of March up to June. A continuance of bloom will thus be secured, commencing in July and lasting until November. Nevertheless, the latest bulbs will not become fully matured, and must not be depended upon for the following season. The size of the bulbs must also be taken into consideration in planting. The largest bulbs do *not* produce the finest flowers, but, in a collection, they bloom the *soonest*. They should be succeeded by the medium-sized bulbs, and those by the smallest. By planting in pots of $5\frac{1}{2}$ inches, or 48 size, in the month of January, and placing the latter in a cold frame, or, in default thereof, plunging them at the foot of a south walk, and covering them over with leaves to keep out the frost, and afterwards setting out the plants in their intended places when the frosts are over, we may ensure bloom in the month of June. The depth at which the bulbs are set in the ground must be regulated according to their size, so that the smallest may have two inches, and the larger ones three to three and a half inches of soil over them.

Water must be given when required during growth, more particularly when the weather is dry and hot. The bulbs should be taken up by degrees, as their stems die down. If the operation be deferred until they are all ready the, stems of the earlier ones will fall off, and the bulbs, being in a state of repose and in constant contact with the damp earth, will rapidly deteriorate, becoming sickly and unfitted for the work of reproduction. After taking up, the bulbs should be laid on shelves, in a dry and airy place, without heat, when they will keep well.

The spikes bloom well in water; the smallest buds opening perfectly—thus giving a succession of blossoms. A few spikes in a vase, intermingled with foliage, such as some sprays of tamarix, roses, lilac, spinæa, privet, etc., produce a charming decorative effect in rooms—an effect far superior to anything possible with other plants.

ON THE CULTIVATION OF LILIES.

BY MESSRS. TEUSCHEL AND CO., COLCHESTER.



I beg to be allowed to make a few remarks supplementary to the paper on this subject in the October number. The remarks you have made on the difficulties experienced by beginners in lily culture are very true; these difficulties hitherto, from want of real practical knowledge, have been inevitable: there is unfortunately no royal road to knowledge even about growing lilies—trials must be made, expense incurred, and probably much disappointment, but experience thus gained at the expense of the pocket, is the most valuable and reliable. We have ourselves suffered great disappointment in cultivating certain kinds, and incurred heavy losses, but we hope by recording our experiences, (see our Notes on Lilies) to induce other cultivators to imitate our example, and thus by degrees the proper treatment requisite for each particular kind will be worked out; nevertheless, every lily grower must for himself find out how far these instructions must be varied to suit the particular local conditions of soil, aspect, and climate, where he resides.

We cannot quite concur in the remark that very few varieties are fit for open border culture: much depends on proper drainage, soils, aspect, shade, etc., but if these are properly adapted, certainly nineteen out of twenty kinds mentioned in our list may be successfully grown out of doors, and thus these beautiful flowers may easily be brought within the reach of the many, and rendered popular and pleasing. It is mainly with this view that we have placed on record our experiences of out-door culture, and solicit others to follow our example.

With regard to the losses mentioned in your paper as occurring in the wet winter of 1872-3, from insufficient drainage, we think it self-evident that if that fault had been avoided, or if the bulbs had been lifted and stored in a cool cellar, during the months of December and January, this would not have happened. On our light soil, several feet deep, but resting on sand or gravel, the drainage is so perfect that a well forty feet deep, used many years ago for water supply, now never contains a drop; hence we lose no bulbs in the winter, however wet, our chief loss is in summer from drought.

Clearly, however, in wet and damp soils, loss may be avoided by providing artificial drainage under the lily bed—such as a heap of clinkers, brickbats, or such like, by planting the bulbs on the side of a slope instead of a hollow, or by lifting, as aforesaid, the bulbs in the wettest and dullest time of the year; but this should only be resorted to in extreme cases.

If artificial drainage be provided in damp soils we are sure that bulbs will be all the stronger for being wintered out of doors.

Planting should if possible be finished in November, and then it will be a good rule to mulch the lily bed with two or three inches of long straw manure, this will protect from frost not merely the bulbs, but also the young shoots just peeping above ground in April, and as the rain washes down the diluted manure in a liquid form, sufficient will be supplied to the roots to obtain a good supply of flower buds, without over stimulation; while the injurious contact of decomposing organic manure, with the bulb or roots (on which much stress is laid in lily culture), will be avoided. We do not observe any mention of sand in your paper: on the proper use of coarse white sand in sharpening stiff soils, in preventing the earth from caking about the bulbs, and in admitting the influence of light and air to the roots, we lay great stress; and we strongly recommend in planting to place the bulb on a handful of sand, or, what we think still better, of fine cocoanut-fibre, in which the lilies root readily. We believe cocoanut-fibre should be largely used by all lily growers. It is a capital medium in which to store bulbs, which cannot be planted, it keeps them cool and moist, encourages root action, and the bulbs may be lifted and planted without any of the rootlets being broken. Placed about the bulb in the ground it prevents caking, is always cool and moist—and if thus planted with them, indicates in the taking-up time where the bulbs are to be found, a point of some importance when the kinds are small, and days are dull. A mulching of two inches of cocoanut-fibre in hot weather also keeps the bulbs cool, their surface roots moist, and is no disfigurement to the beds.

It is also highly important, when it is necessary to lift bulbs, whether for exchange, sale, or otherwise, and keep them awhile out of the ground, to cover them from the drying action of the atmosphere by some cool, moist material; for this purpose cocoa waste is most useful. It has been for years our practice thus to store away the bulbs which of necessity we must keep during the winter months for our customers. It is also most useful to restore moisture to bulbs, which after importation arrive, as many do, in a dry state.

Bulbs to be imported successfully, should be taken up as soon as they go to rest, *i.e.*, as soon as the flowering season is over—slightly dried, packed in some dry material, such as sand, charcoal, sawdust, etc., to exclude moisture and the action of the atmosphere—and sent off as quickly as possible to their destination. This routine is necessary for imported bulbs, but it does not improve their condition, and it is not to be wondered at, if they require a season to recover themselves. First, there is the drying up of some of their juices, in itself no slight evil; secondly, the paralysis of two or three months before the bulb is again placed in a condition where growth and root action can be carried on favourably; and thirdly, the delay of some months in growth, by which period the bulb is behindhand as compared with those bulbs which have not been lifted, but have already commenced their growth underground for the coming season. Practically, we find that imported *Lilium Auratum*, if planted on arrival, flower exactly two months (precisely

the length of their voyage) later than those that have not been disturbed during the winter.

We now desire to record some observations.

1. We insist most strongly on the value of early planting. We find a great difference in the health and vigour of those bulbs which were planted in October, November, and December, as compared with those planted in March and April, and by no section is this so forcibly illustrated as by the *Martagons*. Many persons must, like ourselves, have experienced great disappointment in the past season, more especially with regard to the North American forms which were largely imported in 1872-73, and will probably be so again. Indeed, we may say, that having planted several hundreds of *Washingtonianum*, *Humboldtii*, *Puberulum*, *Pardulinum*, and others, late last spring, we were scarcely rewarded by a single flower—and these poor and insignificant—in fact, very few made any sign at all above ground. We are quite sure therefore that many of our customers must have felt as we did, and must have blamed us for having deluded them into paying high prices for worthless bulbs, but as we had had some slight experience previously of this section, we deferred forming a decided opinion on the subject till the time for lifting the bulbs came, and now we find the bulbs healthy generally, firm, with decided root action, and in many cases vigorous preparation for next season, in the form of shoots three inches long, with abundant and vigorous roots. One of our best lily cultivators asserts that his *Szovitzianum* behaved similarly in 1871-72; having made no sign, he thought they were rotten, to his surprise in autumn, he dug up most magnificent roots, far finer than he had planted.

We can instance similar behaviour in others of the same group. *Chalcedonicum*—we broke up a bed of fine bulbs, divided and replanted them in the autumn of 1872. In spring, shoots appeared, but did not progress and shortly died away; we feared a loss, but the bulbs are now, on examination, quite sound and healthy, and prepared for growth; they evidently resent division and transplantation. Similarly, *Carniolicum*—out of a hundred bulbs planted in the spring of 1872, not one appeared above ground, yet the bulbs are now all sound and healthy. *Excelsum* and *Pomponium* have behaved similarly. Hence in this section we find bulbs, as a rule, making active growth in October and November; what wonder then if taken up and stored in the winter months, or paralysed by importation, they are behind-hand when planted out in the spring, and are unable to make satisfactory root growth, before scorching weather comes on and dries up the foliage? Moral—Plant *Martagons* out in October or earlier, and do not expect much from them the first season; when established, they will throw up grand shoots. More especially expect nothing from the North American imported bulbs the first year. “Blessed is he that expecteth nothing, verily he shall not be disappointed,” is true at least of these forms the first year, but the second year, if left alone in a suitable spot, they are truly magnificent.

2. Plant deep: we have had, this autumn, a capital illustration of

January.

the value of this maxim. Bulbs planted six inches deep on our light soil, have been lifted with six to eight or more young bulbs as large as fine filberts, adherent to the underground stem, with a good sized mother bulb; those planted only two inches deep have had, it is true, as many offsets, but the bulbs have been so small as to be troublesome to collect, and not vigorous enough to maintain a separate existence.

3. We believe that we were the first to point out that the use of the two sets of roots belonging to a lily is twofold: the upper one, proceeding from the base of the stem, maintains the foliage and flowers; the lower set, proceeding from the base of the bulb, maintain the bulb proper, and provide the nourishment therein stored for next season's growth; we have had last season additional proof of the correctness of this view. We have taken up many bulbs that had flowered well, especially among the late-planted *Auratum*s and *Pomponium*s, but they fell to pieces immediately. In all these cases roots were plentiful, but they were stem roots; either there were no roots proceeding from the base of the bulb, or the few that existed were unhealthy, hence the bulb rotted at base, and fell to pieces on being moved.

4. We find the *Thunbergianum* section do best on light soils, also *Concolor*. *Martagon*s and *Auratum*s on a heavy soil, as also *Tigers*. *Speciosum* section on a mixed soil or light loam. *Longiflorum* does well on both light and heavy, but best perhaps on a light soil. *Leichtlinii* does badly on light soil, being scorched up in hot weather. The *Umbellatum* section seem to do well anywhere. *Tigrinum flore-pleno* flowers best under glass, out of doors the flowers are meagre and devoid of colour.

Giganteum we cannot yet grow happily; planted out of doors, the leaves get scorched and fail, (slugs are very partial to the broad fleshy leaves), bulbs get unhealthy and rot away. We shall be glad of a few hints on the culture of this lily from those who grow it successfully, we think it must require a sandy peaty soil, much moisture and warmth, and also shade. If so, in a fern house or behind a stage under glass, it would do well. It is generally known that the bulb of this species, after flowering, breaks up into a number of offsets and dies away; such is our experience.

Leichtlinii we have seen grand as a pot plant combined with *Tigrinum flore-pleno*, grown under glass at Mr. Wilson's, Weybridge.

Longiflorum with us does perhaps the best of any lily out of doors, *en masse*, on our light soil. The effect of 1000 stems all in flower at one time for about three weeks, was simply magnificent; in the winter 1872-3 these beds were undisturbed; the increase last year was marvellous. We consider this the easiest and best lily to grow, and have never to complain of its being cut by the spring frosts, and as it comes from Yesso, the Northern Island of Japan, where the climate for six months resembles that of a Russian winter, we cannot understand the complaints made about its tenderness; our experience is exactly opposite.

We regret that we have so little to say about this beautiful

group of plants, but we trust that that little will prove acceptable to lily growers.

We have only now, in conclusion, to correct a slight error in your October number. Our "Notes on Lilies," is priced at 2s. 8d., not 2s. 2d. as stated, and may be procured from us direct, instead of troubling Messrs. Bertram and Harrison, our printers.

DISTINCTIVE LANDSCAPE TREES.

BY JOHN MORRISON,

Coneypark Nursery, Stirling.



THE following is a list of such varieties of trees as I consider suitable for giving a pleasing effect to the landscape during different seasons:—

THE ASH (*Fraxinus excelsior*), foliage shining green in spring, green to yellow in autumn; golden ash (*F. e. aurea*), yellow; aucuba-leaved ash (*F. e. aucubifolia*), yellow and green; entire-leaved ash (*F. e. var.*), green in spring, green to yellow in autumn. The common ash is so well known that little description of it is required; but the three last-named sorts here introduced contrast so beautifully with it as to foliage, that they are worthy of remark and a place in any collection.—The golden ash, displaying both in wood and foliage the fine golden tint of autumn throughout the season, is very conspicuous; and the aucuba-leaved having beautifully mottled-like foliage, is very attractive; while the entire-leaved, although having nothing uncommon as to colour, is nevertheless very distinct and ornamental as regards shape of foliage.

THE BEECH (*Fagus sylvatica*), foliage shining green in spring, yellow in autumn; purple beech (*F. s. purpurea*), purple; large-leaved beech (*F. s. macrophyllum*), shining green in spring, yellow in autumn.—The beech is a highly ornamental tree, both as to habit and colour of foliage, and more especially the purple-leaved variety, which is very attractive when planted either as single specimens or in groups, care being taken that the other varieties of trees planted near them be of as light a colour of green or yellow as possible. The large-leaved variety is a much bolder-looking tree than the common, and is worthy of distinction. There are several other varieties of beech, such as the gold-striped or blotched-leaved, and the cut-leaved or fern-leaved, but neither of these are sufficiently ornamental for general purposes.

THE BIRCH (*Betula alba*), foliage bright green in spring, yellowish-brown in autumn.—The beautiful birch hardly requires description. There are few trees better known, and I believe none more generally admired. The birch seems never out of place; its fine pendulous branches and pyramidal habit, with beautiful silver bark, render it suitable alike for the flat or knowly lawn. It is equally at home on

the hill-side or among craggy rocks, and will answer the grounds of the palace or the limited plot attached to the cottage.

SPANISH CHESTNUT (*Castanea vesca*), foliage green in spring, pale yellow in autumn; Spanish chestnut, Knight's Prolific (*Castanea v. Knightii*), shining green in spring, pale yellow in autumn.—The Spanish chestnut will always take a prominent place in park scenery, being a noble tree with fine foliage. Knight's Prolific is by far the handsomest variety, being more upright in habit of growth, and having most beautiful shining green foliage.

HORSE CHESTNUT (*Æsculus hippocastanum*), foliage dark green in spring, brown in autumn; horse chestnut (*Æsculus h. rubicunda*), dark green in spring, brown in autumn.—The horse chestnut makes most admirable specimens, having broad-set, half-pyramidal heads; and when the scarlet-flowering are planted side by side with the white-flowering or common, while in flower, are truly pretty. Add a lime tree to the group as a background, and the picture is complete. The rich golden tints of the lime harmonize with the brown of the chestnut, and the formation of head of each sort dovetail them, as it were, together.

THE ELM (*Ulmus montana*), foliage dark green in spring, brown in autumn; purple elm (*Ulmus m. purpurea*), purple and green in spring, brownish in autumn; upright elm (*Ulmus m. fastigiata*), green; English elm (*Ulmus campestris*), green in spring, yellow in autumn; cork-barked elm (*Ulmus c. suberosa*), green in spring, yellow in autumn.—The elm holds a prominent place in most collections, and deservedly so, for if properly trimmed when young, few trees can compare with it either as single specimens or for forming an avenue. The upright variety is very striking and pretty. The purple elm is only so on the back of the leaf, but its roughness prevents the colour being shown to the extent desired. The cork-barked and common English elm make fine specimens, and are very effective, the smallness of their foliage having a pleasing contrast with *montana*.

CYPRESS, deciduous (*Taxodium distichum*), foliage pale green in spring, brown in autumn.—The beautiful fern-like foliage of this tree gives it a first claim for ornamental planting. It makes a fine specimen as to shape, and its foliage is truly lovely. It thrives best when somewhat sheltered, and in a rather deep and moist soil.

LABURNUM, Scotch (*Cytisus L. Alpinus*), foliage shining green in spring, yellow in autumn; laburnum, common (*Cytisus Laburnum*), green in spring, yellow in autumn; laburnum, purple (*Cytisus L. purpureum*), green in spring, yellow in autumn.—The laburnums are well known and highly ornamental, their foliage in September and October being nearly as brilliant as their flowers are in early summer. The purple variety is very striking, often having purple and yellow flowers on the same trees. The above three varieties ought to be strewn about the outskirts of pleasure-grounds, and are extremely pleasing when seen from a short distance.

LIME TREE (*Tilia Europæa*), foliage pale green in spring, yellow in autumn.—The lime is a tree of great excellence, making most handsome specimens of pyramidal shape when planted singly. They

are finely adapted for a screen, or as an avenue line, and have a pleasing effect on the landscape in autumn, their beautiful yellow foliage then contrasting favourably with most other trees.

LOCUST TREE—*Acacia (Robinia pseudo-acacia)*, foliage green in spring, yellow in autumn.—The acacia is of rapid growth, and comparatively hardy, and shows in pleasing contrast with most other trees.

MAPLE, striped barked (*Acer striatum*), foliage green, tinged with yellow, in spring, pale yellow in autumn; Maple, large-leaved (*A. macrophyllum*), brownish-green in spring, brown in autumn; Maple, Norway (*A. platanoides*), bright yellow in spring, yellow and purple in autumn; Maple (*A. Pennsylvanicum*), beautiful yellow in spring, reddish-yellow in autumn; Maple, silver (*A. negundo fol. variegata*), silvery-white in spring, white in autumn; Maple, Sycamore (*A. pseudo-platanus*), pale green in spring, brown in autumn; Maple, variegated (*A. p.-p. variegata*), striped; Maple, purple (*A. p.-p. purpurea*), purple in spring, purple and brown in autumn.—Among all our ornamental trees there is no tribe more worthy of cultivation than the Acers, with their most beautiful, varied, and fantastically-cut foliage, comprising all the shades of green, yellow, white, striped, red, and purple. They are attractive in the highest degree, and readily adapt themselves to various soils and situations; while some of the varieties are of very rapid growth, such as macrophyllum, platanoides, rubrum, and the sycamore. They ought to be much more extensively cultivated than they appear to be; indeed, no ornamental planting is complete without a sprinkling of the Acers.

OAK, English (*Quercus robur*), foliage bright yellow in spring, brownish in autumn; Oak, scarlet (*Q. coccinea*), sulphur-yellow in spring, purple and scarlet in autumn; Oak, Turkey (*Q. cerris*), green in spring, greenish-brown in autumn; Oak, variegated Turkey (*Q. c. variegata*), silver-striped.—The oak is among trees what the lion is among beasts—the monarch of the forest, and has associated with it all that is grand, noble, and majestic. Being so well known, anything like a particular description is perhaps unnecessary. The British oak is an ornamental tree of the highest order as to specimen; and, when unfolding their bright yellow leaves in May, the trees are objects of increasing beauty. The scarlet oak has a higher claim on account of the loveliness of its foliage, and retains the fine pale yellow colour of leaf during the month of June, changing to purple and scarlet in September and October. The Turkey oak, with its bright shining green and finely-carved foliage, makes a very graceful tree; and the silver-striped variety, with the same shining green and clear silver lacing, has a most cheerful appearance. There are several other varieties of the oak which might have been named and described; but the three last-mentioned, being sufficiently dissimilar in foliage, and handsome as specimens, will serve the purpose of this paper.

ORIENTAL PLANE (*Platanus orientalis*), foliage grey-green in spring, brownish in autumn; **Western Plane** (*Platanus occidentalis*), dull green in spring, brown in autumn.—The planes are the most

characteristic and ornamental trees we have. Where they thrive, they make magnificent specimens. They like a somewhat sheltered situation, and a good deep loam. The colour of the foliage, either in spring or autumn, is not so much a distinguishing feature as its shape and general appearance, which render the trees very striking objects in the landscape.

ABELE POPLAR (*Populus alba*), foliage white and green; Black Italian Poplar (*Populus monilifera*), yellowish-green in spring, bright yellow in autumn; Lombardy Poplar (*Populus fastigiata*), pale green in spring, brownish in autumn; Balsam Poplar (*Populus balsamifera*), yellow in spring, brownish in autumn.—The poplars are useful as well as ornamental for planting in and around policies. The Abele and Black Italian varieties will thrive well in moist situations, such as river-sides and on the border of lakes, etc., and they are also of very rapid growth. The surface of the leaf of the Abele, being of a fine shining green, while the back is of a beautiful downy white, is shown to great advantage when it is stirred by the breeze. The Black Italian variety has a cheerful pale green coloured leaf, and makes a very handsome specimen, retaining the foliage and colour longer than any other variety of poplar.

SERVICE TREE (*Pyrus aria*), foliage grey-green in spring, brownish-green in autumn.—The service tree is very ornamental, having fine grey-green foliage; is half pyramidal in shape, and makes a beautiful mixture among the darker-foliaged trees.

TULIP TREE (*Liriodendron tulipifera*), pale green in spring, rich yellow in autumn.—A very beautiful and highly ornamental tree, foliage being nicely cut like a saddle, and of an extremely rich yellow colour in autumn.

THORN, single scarlet (*Crataegus oxyacantha punicea*), bright green in spring, yellow in autumn; Thorn, double scarlet (*Crataegus o. flora plena*), bright green in spring, yellow in autumn; Thorn, double white (*Crataegus o. f. p. alba*), bright green in spring, yellow in autumn.—The thorn, although not growing to a large tree, is highly ornamental to the lawn. These three are perhaps the prettiest and most useful amongst the many varieties—the beautiful scarlet blossom of the one, and the large trusses of pure white of the other, being very striking. There is something peculiarly sweet and homely about the thorn, which makes it a universal favourite.

WALNUT (*Juglans regia*), foliage shining green in spring, brown in autumn.—A noble tree, and well worth a place in every lawn of sufficient extent to admit it.

WILLOW, Huntingdon (*Salix alba*), foliage silvery-grey in spring, silvery in autumn; Willow, Bedford (*Salix Russelliana*), greyish-green in spring, brownish in autumn; Willow, Seaside or Comewell (*Salix*, var.), grey-green in spring, brownish in autumn.—The willow is a most useful, and certainly very ornamental tree. The Huntingdon variety delights in comparatively swampy ground, and thrives well on the margin of rivers and lakes. When the trees are full-grown, and have their pendulous branches drooping over or kissing the stream as it passes along, or dipping into the placid waters of the lake, they appear in fine keeping with the scenery.

The Bedford variety is more upright in habit, and less downy, although very pretty, and makes fine specimen trees. The Comewell or Seaside variety is not so fine in form or foliage, but is better adapted for some purposes than the others. The former are fresh-water willows, while this is a salt-water variety, and is therefore most useful for planting in our islands. If an entire line were planted between the sea and the land, and cut over at different heights, and thereby caused to stool out—or even if a double or triple line were thus planted and topped, it would form an excellent guard against sea-spray and high winds. Also, where a few are dotted through the regular planting, they shelter and nurse the plantation wonderfully.

In the above list of ornamental trees, I have entered none but such as I think are strictly suitable for the purpose, and, at the same time, useful. The pines I have not considered it necessary to particularize as to colour of foliage. The whole are ranged according to the best of my judgment; and if the paper should be considered serviceable in some degree in promoting a higher style of landscape ornamentation, and thereby further one of the many laudable objects of the Highland and Agricultural Society, I shall feel satisfied.

LIME-KILN HEATING.



WITHIN a comparatively recent period a system of heating plant and fruit-houses has been brought into notice, and has received a considerable amount of attention from horticulturists and others interested in economizing fuel. The system consists of a combined lime-kiln and hot-water apparatus, the former being substituted for an ordinary furnace. The advantages of the system are said by the inventor, Mr. Cowan, to consist in reducing the labour of attending to the fires very materially, and in saving a very considerable portion of the cost of the fuel, for he in fact asserts, that the value of the lime produced in a given period will be equal to the value of the fuel consumed in producing it. As yet we have no means of ascertaining how far this assertion is borne out by facts, but as an apparatus has been recently fixed to heat several large houses in the gardens of the Marquis of Salisbury, at Hatfield, we shall soon be able to obtain reliable information upon the point. The furnace is built in much the same manner as an ordinary lime-kiln; a saddle boiler, or one of a similar shape, is fixed upon the top, and from this the pipes radiate as from a boiler fixed over an ordinary fire-place. A great depth of stoke-hole is therefore necessarily required, and sufficient space must also be provided for the storage of the lime after it has been burnt, as well as for the coal used in its production. The success of the system depends entirely upon the truth of the assertion that lime-stone and chalk when heated by means of fuel to a certain point become independently incandescent, and give out more heat than they have taken from the fuel to raise them to the proper tempera-

ture. It is certain that a very considerable amount of heat given off by the fuel is absorbed by the limestone or chalk, and consequently the fuel will have to do double duty, and it remains to be ascertained if that is fully compensated by the subsequent heat of the burning mass, and the value of the resultant lime. What the inventor proposes to do is clear enough, but the theory of its profitability is not so. Lime is undoubtedly worth money, and it might with considerable advantage be used in gardens where it has hitherto been a scarce article. But the question is, will it pay to produce it in furnaces employed in heating plant-houses? The distance of the site of the proposed kiln from the nearest suitable quarry is a matter of some importance. The cost of producing and the actual value of lime on the spot is another matter of importance. Good limestone and chalk are so widely diffused that the geographical difficulty will probably disappear wherever there is a thorough determination to adopt the system. It may be desirable to state that, when a suitable rock is selected, the lime obtained by the process of burning is about the same in bulk as that of the rough stone put into the kiln, but in weight it is about one-half. Or, to put the case more precisely, the loss in weight will average 45 to 50 per cent., and the loss in bulk only 1 to 3 per cent. The amount of fuel required to burn a given quantity of limestone varies according to the nature of the kiln, but on the average a given cubic measure of coal will calcine four and a-half times the same measure of limestone.

The system, wet need hardly say, is adapted for those gardens only in which several houses are heated by one boiler, even if it answers the expectations of the inventor. Those who are interested in the matter may obtain further information on application to Mr. Cowan, Dromore, Kenmare, Co. Kerry, Ireland.

CHOICE DESSERT PEARS FOR SMALL GARDENS.

BY WILLIAM COLE,

Head-Gardener, Ealing Park, Middlesex, W.



IN this communication it is my intention to direct attention to a few of the most important points in the production of good crops of the finest dessert pears; and in doing so, I hope to show that the cultivation of the pear is not by any means so difficult as some writers would have us believe. Indeed, there are no difficulties—properly so-called—in the matter; and in all gardens of sufficient size to afford accommodation for fruit-trees, a goodly collection of the choicer kinds of dessert pears should be grown. No fruit grown out of doors is better appreciated during the autumn and winter than a dish of well-ripened pears; and it may also be added, no fruit will afford a more ample return, taking all things into consideration, for the necessary labour and space required in its production.

The first step is to prepare the soil ; and this part of the subject may be dismissed very briefly, for the pear-tree will do exceedingly well in any well-drained loam, provided it is previously turned up to a depth of eighteen inches. Good crops may also be obtained from trees planted in a light soil, but the fruit will not be so large in size nor of such good quality as that obtained from trees planted in more congenial soils. Light soils may be improved very materially by the addition of a little strong loam or pulverized clay ; but it may be safely said that there are few soils in which good crops cannot be obtained without expensive preparation.

When the trees are planted in quarters, it will be necessary to trench them to the depth mentioned above ; but in cases where they are to be planted widely apart, as, for example, by the side of walks, it will suffice if a circular space, three or four feet in diameter, is turned up. In planting the trees, care should be taken to spread the roots out regularly about six or nine inches below the general level, according to the size of the trees planted, to spread a liberal quantity of well-pulverized soil from the surrounding surface over the roots, and to tread the soil very firm. When this is completed, put stout stakes to the trees, to keep them in their proper places.

The best form of tree for the villa garden is the pyramidal ; and in certain cases espaliers are useful, especially where a line of fruit-trees is required by the side of the walks, for shutting out the vegetable crops from view. If it is desired to keep the trees to a small size, say to a height of three or four feet, those budded or grafted upon the quince stock will be the most suitable, and they will come into bearing very early. But they are not, comparatively speaking, profitable ; and are quite unsuitable on naturally dry and light soils. The most profitable trees are those upon the pear-stock, and which are allowed to attain a height of eight or ten feet ; for from these trees we may reasonably expect to obtain a crop worth the gathering. And it may be observed in connection with this branch of the subject, that to have fruit, the trees must be able to make free growth. A gross luxuriance is of course not desirable ; and should the trees be growing too vigorously, they can be checked by pruning the roots.

Pyramidal trees by the side of walks will have sufficient space if planted eight feet apart ; and those in quarters should be ten feet apart one way, and eight feet the other.

The fan-trained trees are the best for espaliers, and should be planted about ten or twelve feet apart, and trained in a similar manner to the trees against walls.

With reference to the after management of the trees, it may be taken for granted they do not require one half of the stopping and pruning usually recommended. In fact, the only summer pinching required is stopping the young shoots at about six inches from the base of each, either in the last week of July, or the first or second week in August. If stopped before the period here mentioned, the trees will make a second growth, and produce a mass of useless spray instead of flower-buds. On the other hand, the stopping must not be done later, as there will not be sufficient time left for the for-

mation of the flower-buds. At the winter pruning it will be simply necessary to thin the shoots where too thick, and shorten a few of the others if they appear likely to spoil the symmetrical appearance of the tree. It will be thus seen that the summer pinching and winter pruning of the trees are by no means formidable tasks even for amateurs with but limited knowledge of fruit growing.

If the trees grow too luxuriantly, they can be checked by digging round them at a distance of thirty inches from the stem. A trench should be opened out to a sufficient depth to ensure all the roots being cut through. Also well work the spade underneath the ball of soil, to cut through the top roots, if any, for the excessive vigour, and the consequent production of fat, ill-ripened wood, may generally be attributed to these roots, which strike down into the sub-soil; so long, however, as the trees make moderate growth only, and produce good crops, they will not require any root-pruning.

The undermentioned are the best sorts for securing a good supply of fruit from September onwards from pyramidal and espalier trees: *August*: Citron des Carmes, Jargonelle. *September*: Williams's Bon Chrétien, Brockworth Park, Beurré d'Amanlis. *October*: Louise Bonne of Jersey, Seckle, Urbaniste, Beurré Superfin. *November*: Van Mons Leon le Clerc, Thompson's, Soldat Esperen, Foudante des Charneu, Beurré Berckmans. *December* and *January*: Catinka, Glou Morceau, Monarch, Josephine de Malines, Ne Plus Meuris, Winter Nelis, Alexander Bivort. *February* and *March*: Beurré Sterckmans, Beurré Easter, Beurré Rance, Eliza d'Heyst, L'Inconnue.

THE PREPARATION OF FRUIT FOR THE TABLE.



UNLESS there is some special and peculiar reason to the contrary, this should be the work of the gardener. This assertion will surprise such of our readers as have had but little actual experience in the cultivation of fruits; but it will bear serious consideration nevertheless. It is a common thing for handsome bunches of grapes, furnished from the hand of the gardener with unbroken bloom and in perfect exhibition condition, to appear shortly afterwards at table bloomless and glossy, the result of having been freely handled in the artistic process of preparing them for the table. To handle fruit for any purpose, if the preservation of its beauty is a matter of any importance, requires much more skill than is possessed by the average of domestic servants. But the question raised, as to who should prepare the fruit for table, does not rest on the relative skill of the several parties concerned; there is the subject of honesty to be considered also. It is scarcely an agreeable task to point to the occasional possibility of the largest strawberries being abstracted from a fresh gathered dish, or of a handsome bunch of grapes being denuded of its shoulders. But we must face unpleasant facts and discharge unpleasant duties sometimes, and we refer to these possibilities as furnishing a second

argument in favour of the preparation of fruit for the table being undertaken by the gardener, unless there is a valid reason for some one else to do it. Now, in many houses the ladies superintend this part of the *menu*, and all that good taste can demand is at the service of the guests in respect of the fruits and flowers that adorn the table. Ladies who have the leisure, and who take an interest in such matters, can bestow more time in grouping and arranging fruit; and the most tasteful of gardeners may gladly surrender into these abler hands a task which is attended with difficulty fully equal to the honour that accompanies success. But if none above the rank of servant take this business in hand, the gardener is the only person who should touch the fruit from the moment of its being gathered until it is finally set before those who are to eat it in all its proper freshness and beauty, and with such accompaniments, in the way of leaves and flowers, as taste may dictate.

If this much be true in the first consideration of the subject, it follows that gardeners should study how to prepare fruits for the dessert. We fear that there are not many, even amongst the most expert producers of fruit, who could arrange their productions artistically, so as to show the real beauty of the fruit at its best, and with such surroundings as should evince the employment of good taste and appropriate industry. If we may judge by the usual appearance of fruits at exhibitions, the practices of cultivators in presenting them are of a very rough-and-ready character; for, in truth, it is but seldom we see fruits displayed as they should or might be. Nor is it at all surprising that men who have given their minds to the serious study of their business, and habituated themselves to large and general views of things, should be occasionally perplexed about such minor matters, and perhaps give way to the thought that putting fruits into dishes and baskets is a sort of child's play. From one point of view, perhaps this is a very trifling matter. To grow good fruit is the grand thing, and to dish it, or even to eat it, is quite a secondary thing. But even trifles may properly engage our attention at times, and for a man who has laboured anxiously for months to provide his employer with a dish of fine grapes, peaches, or strawberries, it is by no means a derogation to see that his employer obtains them in their proper quantity, and in the same condition of bloom and freshness as they would have if the gardener placed them on his own table. In different households different rules prevail, and no prescription in respect of serving viands can be of universal application. But there are many cases where the rule as to the placing of fruit on the table might be revised, to the advantage of all who eat it, and perhaps to the advantage also of the gardener's reputation. The two grand requirements of whatever rule prevails is that there shall be no abstractions and no spoilings. Good fruit will not bear rough usage, and sooner than it should pass through half a dozen hands, and make the grand tour of all the domestic offices, being half roasted in one place, and well steamed in another, and a little sorted sometimes to remove the best, we should prefer to see it transferred in truck baskets, punnets, or willow pattern plates, direct from the hands of the gardener to the hands of the host. But

there is abundant opportunity for rendering dessert fruits the most elegant of all the adornments of the table, and we suggest to cultivators that much of the credit due to good cultivation is lost when fruit is inelegantly presented. S. H.

MESSRS. JACKMAN'S NEW CLEMATIS HOUSE.



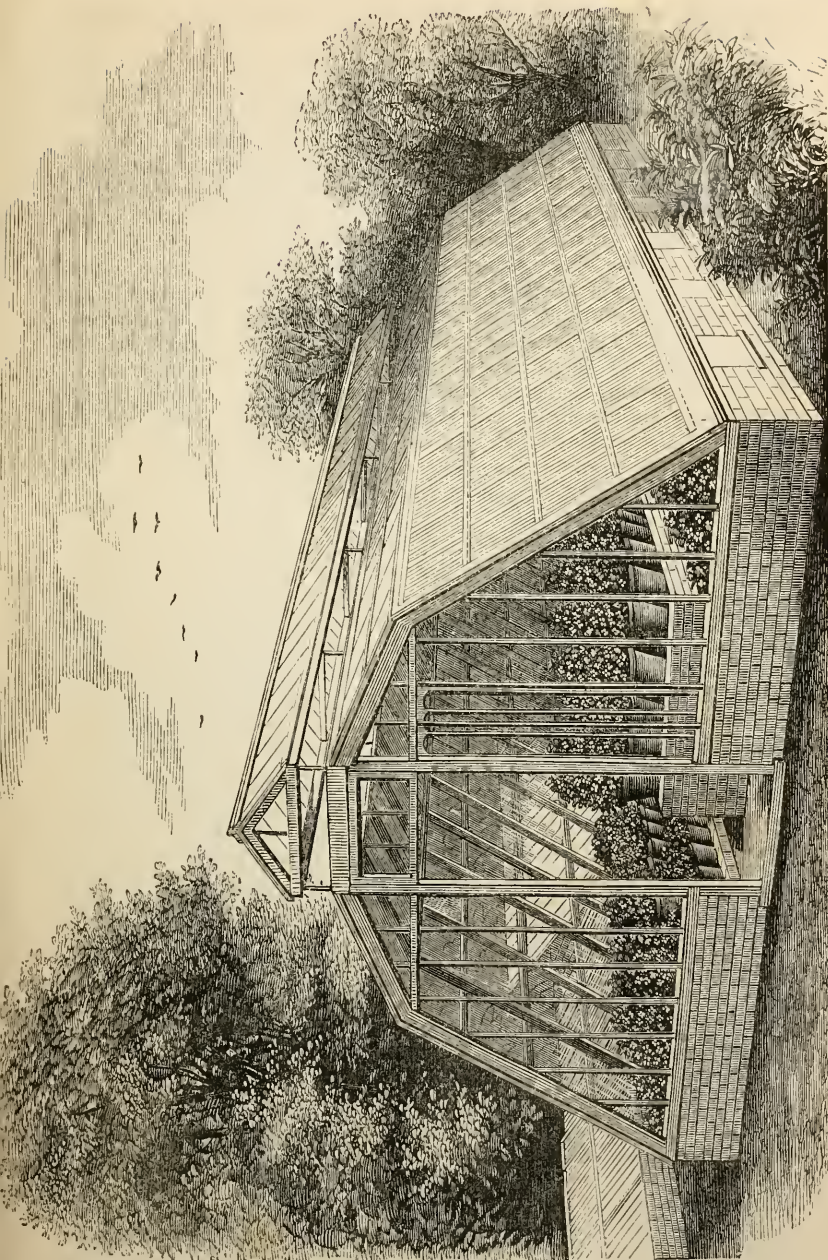
THE subjoined figure represents a new and handsome structure Messrs. Jackman, of The Nurseries, Woking, have had put up for the accommodation of pot plants of Clematis. It is interesting as illustrative of the increasing demand for the splendid Clematis Messrs. Jackman have exhibited, and also of Rendle's method of construction, this house affording an elegant and substantial example of the capabilities of Rendle's patent. It will be seen by the figure that the modification of the customary span reduces considerably the thrust on the side-walls, increases head-room over the side-borders, and secures a more perfect ventilation at the ridge-line than is obtained in a house of the ordinary span-roof pattern. The abundance of light and air renders such a structure admirably adapted for clematis, and it is not the less suitable for pot-roses, chrysanthemums, or for a summer show house for pelargoniums, heaths, and tender rhododendrons. For a winter heath-house a more suitable structure could not be designed. S. H.

THE GARDEN GUIDE FOR JANUARY.

Then came old January, wrapped well
 In many weeds to keep the cold away ;
 Yet did he quake and quiver like to quell,
 And blowe his nayles to warme them if he may ;
 For they were numb'd with holding all the day,
 An hatchet keene, with which he felled wood,
 And from the trees did top the needlesse spray :
 Upon an huge great Earth-pot Steane he stood,
 From whose wide mouth there flowed forth the Romane Flood.

SPENSER.

JANUARY is the coldest month of the year, and one of the driest. In London the average mean temperature is $37^{\circ}2$, the range of the thermometer being from 10° to 52° . The mean of the barometer is $29^{\circ}92$; the mean rain-fall is 1.48 inches. The prevailing winds are S.W., W., and N.W. The weathercock rarely points E. for any length of time, but whenever it veers that way a keen frost may be expected; the frosts of longest continuance usually occur with the wind N.W. If the wind goes back to W., snow may be expected, to be followed by rain with every movement towards S., when a thaw and a clear-up may be hoped for. If, on the other hand, the wind goes round by way of E., S., W. to N.W., and there becomes steady with a rising barometer, a long, clear, dry frost may be looked for. If from this point the wind goes round (that is, the way of the



NEW CLEMATIS HOUSE IN THE WOKING NURSERY.

sun) to E. and then to S., the barometer will probably fall but little, and a dry thaw may follow.

There are few plants in flower now. If the weather is mild we shall find a few primroses and violets, and the Christmas rose may still present a few of its flowers like white lilies, but this fine plant has usually done flowering by the middle of the month. There is nothing in the garden indeed to compare with the common dandelion, "the sunflower of the spring," which we should surely cherish as a "gem of purest ray serene" were it but a rare exotic instead of being, as it is, a weed of weeds and the most sturdy of floral vagrants.

The garden-work of January is mostly prospective and preparative. It is not a good time for planting, and the circumstances must be peculiarly favourable to warrant the sowing of seeds. But whenever the weather permits, ground work should be carried on, so that when the season returns for sowing and planting, there shall be well-prepared quarters, mellowed by frost and ready to break down kindly at a touch from the spade. It is the time too for a grand clear out of rubbish heaps, and muck pits, and wood-yards, for a hard frost favours wheeling, and manure may be got out on plots where it will be required, and will take no harm if it lays some time before it can be turned in.

One of the most important matters to think of now is the stock of seeds. Many people order their seeds a few days before they wish to sow them, and have to wait weeks before they obtain them, owing to the excessive pressure on the seed-trade in the spring. Procure the seeds as early as possible, to have them at hand whenever is considered desirable to sow them. The weather throughout the spring is so capricious that there must be no trifling, if the best results are to be obtained from the space at disposal. Every foot of unoccupied ground in the kitchen garden must be manured, turned up, and otherwise prepared, so that there may be no waiting about, favourable opportunities lost, and the crops put in jeopardy.

FLOWER GARDEN.—Dress the borders with rotten dung two or three inches thick, but do not dig or disturb the soil, or many bulbs and herbaceous plants may be injured. This is a good time to make banks and rockeries, preparatory to planting them in spring. Save all handsome loppings of trees for rustic work; large boughs of apple and oak are most valuable for such purposes. Planting had best be deferred; but if the weather is mild and dry, deciduous trees, roses, and hardy bulbs may be put in. But this is the worst month in the whole year for planting, for, if we have hard weather in February, hundreds of recently planted valuable shrubs and trees will be lost.

GREENHOUSE.—Use fire-heat with caution, but do not allow frost in any of the houses. Hard-wooded plants never to be above 50°; if any sudden bursts of sunshine, with a west wind, give abundance of air. Soft-wooded plants, such as primulas, cinerarias, etc., keep near the glass or they will run weak. Shift cinerarias for exhibition into their blooming pots and tie out. Ericas to be cleared of dead leaves, and have a dry air; those showing for bloom to have good places, and be tied out. Pelargoniums for show to have their last potting; keep near the glass, and look out for green-fly. Fuchsias

required early to be repotted in small pots, and have a moist heat of 60° by day and 50° by night. Scarlet geraniums to have little or no water, unless in a warm house, and showing bloom, and then they will not require much. Verbenas and petunias should be on a top shelf, and be kept tolerably dry. Calceolarias will endure damp, and require to be only just kept safe from frost. If any appearance of mildew, dust with flowers of sulphur immediately; if any fly, fumigate with tobacco.

STOVE.—Put all the growing plants at the warmest end, such as Euphorbias, Poinsettias, Justicias, Amaryllis, Gloxinias, Gesneras, Achimenes, etc. Repot Clerodendrons, and place on moderate bottom-heat. Cut down Aphelandras, Poinsettias, etc., as soon as they can be spared, and keep rather dry; as soon as they commence growing, repot them, and they will bloom early next season. Be very careful in giving water; plants at rest to have little or none. Make ready for repotting orchids; sprinkle the floor of orchid-house pretty frequently, but water the roots only of such as have begun to grow. Temperature for general collections of stove plants, 55° by night and 65° by day.

KITCHEN GARDEN.—Dig deeply all vacant plots, and leave rough for frost to penetrate. Char clippings and prunings and other woody rubbish, and spread the charrings on sea-kale or asparagus beds, or save them under cover to dress the soil for Artichokes or Onions. Cart in manure, and finally dress all the plots that are to be cropped early. Where the ground is in proper working order sow Sutton's Early Champion and Dickson's Early Favourite Peas; Mazagan, Longpod, and Windsor Beans; Parsnips, and, on warm borders, to be protected by mats or litter, Radishes, Onions, and Early Horn Carrots.

PITS and FRAMES.—Sow on a well-made hot-bed Egg-plants, Cockscombs, Globe Amaranths, Melons, Cucumbers, Tomatoes, Kidney Beans, Thunbergias, Phlox Drummondii, Mignonette, and Stocks. Pot up a few roots of musk and mint, and put in the same bed with the seeds. The first will be useful for the drawing-room, and the second for the kitchen. Commence propagating Verbenas, Heliotropes, Lobelias, Salvias, Geraniums, Petunias, and Fuchsias. Sow in cold frame Cauliflower, Broccoli, Shilling's Queen and Early York Cabbage, Hammersmith, Neapolitan, and Cos Lettuce, and a few hardy annuals.

FORCING.—Figs will bear more heat than any other forced fruit, but too much heat or too much water will cause the fruit to fall. Peaches in bloom to be kept well watered at the roots, but maintain a dry atmosphere to keep the pollen dry and enable it to perform its allotted functions. Vines to be started at 50° to 60° , never higher, and the syringe to be used freely amongst them. Pines in fruit, 80° by day, 65° by night; shift succession pines at the end of the month. Strawberries to be kept near the glass, and the pots to stand on a warm bottom. Mushrooms must have a temperature of 55° to 65° , and the beds to be syringed frequently with tepid water; thrust the hand down to ascertain if the bed is moderately damp. Asparagus, Sea-kale, and Rhubarb to be put in for succession, and to have plenty of water.

HORTICULTURAL AFFAIRS.



ROYAL HORTICULTURAL SOCIETY.—**DECEMBER EXHIBITION OF EVERGREENS AND CYCLAMENS.**—The December meeting of the Society was of a most attractive character, and was well attended by fellows and horticulturists. Prizes were offered for Hollies, Conifers, Cyclamens, and other subjects; and, as they were in the majority of classes exceedingly well contested, the meeting possessed a larger amount of interest than is usual at this season of the year. The Coniferous trees and Hollies presented in the classes provided for them formed a feature of special interest, and demonstrated in the most forcible manner their adaptability for the embellishment of exhibitions held during the winter season. The Cyclamens were contributed in immense numbers, and, for the season, in splendid condition; but it was too early to have them. Roman Hyacinths were also considerably above the average, the competition being very severe and the productions of a high order of merit. The Japanese Chrysanthemums, invited by the schedule, were unusually good, and the first-prize stand of twenty-four blooms was, perhaps, the finest stand of these singular and showy flowers ever exhibited, the flowers being alike remarkable for size and high finish. The entries in the class for a collection of Endive and other salading were sufficiently numerous to constitute a distinct feature, and the Pine-apples exhibited by Her Majesty's gardener and others in the miscellaneous class were so thoroughly good as to well deserve the Cultural Commendation conferred upon them.

DRESSING FRUIT TREES IN WINTER WITH LIME.—It is a common and very wholesome practice to coat, with a brush or a dash from the syringe, the stems of fruit-trees and gooseberry-bushes, etc., with lime-wash, with a view to remove moss and lichen, if coated with them, and also to keep down insects and give tone to the bark. The objection to this wholesome practice was the spectral whiteness with which it replaced nature's colouring on the trees. This objection, it appears, according to the *Irish Farmer's Gazette*, need no longer hold, for we have seen it stated in a contemporary that it has been found experimentally that equally beneficial results may be obtained by using, instead of the whitewash, colourless lime-water, obtained by steeping hot lime and allowing the water to settle and become clear, in which state it may be poured off and used with excellent effect, without affecting the natural appearance of the trees.

MR. RICHARD DEAN'S CATALOGUE OF POTATOES, of which a new issue has just appeared, is considerably improved, and is in every respect a meritorious and useful production. The introductory essay on potato culture is practical and explicit. The list of varieties classed comprises forty-eight, and the notices of novelties cover half-a-dozen more; so that this catalogue will serve as a guide to more than fifty of the best sorts of potatoes known to cultivators.

A GRAND HORTICULTURAL EXHIBITION is fixed to be held at the Lower Grounds, Aston Park, Birmingham, on the 7th, 8th, 9th, and 10th of July next, under the title of "The Midland Counties' Grand Horticultural Exhibition." In addition to money prizes amounting to £1000, five silver challenge cups, value twenty-five guineas each, will be awarded to the winners of the principal prizes in the following classes—viz., one for plants, one for fruit, one for vegetables, one for cut roses (nurserymen), and another for cut roses (amateurs).

DR. HOOKER.—The degree of LL.D. was conferred on Dr. Hooker, the Director of Kew Gardens, by the University of Glasgow, on the occasion of the installation of Mr. Disraeli as Lord Rector; and at the annual meeting of the Royal Society he was elected President of that body.

A NEW SALAD VEGETABLE is recommended by M. Charton in a recent issue of the *Revue Horticole*. He describes it as resembling in flavour the "corn-salad" or "lamb's lettuce," but "less insipid." The plant is the well-known red valerian of the flower garden, *Centranthus macrosiphon*. As a matter of course, it must be cut over when young if required as a salad, for if allowed to flower it is tough and tasteless.

THE CRYSTAL PALACE.—The management has fixed the following dates for the shows this year: Spring Flower Show, May 16; Great Rose Show, June 20; and Autumn Fruit and Flower Show, September 8, 9, and 10.

AN INVASION OF "PUCCINE EXOTIQUE" IN THE DEPARTMENT OF THE GIRONDE is the subject of an interesting memoir by M. Durieu de Maisonneuve, communi-

cated to the Linnaean Society of Bordeaux, of which we have been favoured with a copy. The species of fungi classed under this genus mostly occur on grasses, but the paper before us relates to the spread of the parasite on *Malva sylvestris* chiefly.

PREVENTING THE POTATO DISEASE.—The application of creosote to seed potatoes has been found to act as a preventive of the disease. The Rev. J. Crawford gives an account of his experiments with this substance and their results in a recent number of the *Ayr Observer*. The eyes of the potatoes are very slightly touched with the creosote, a small painting-brush being the best tool for applying it. Mr. Crawford says that those potatoes in which every eye was anointed were perfectly free from disease, while from one-third to a half of those not so dressed were lost. Some of the tubers planted by him had all the eyes but two or three dressed with creosote, and in this case a few of the tubers were found diseased. On the other hand, some few had too much creosote, and were consequently found completely killed. This is certainly a simple method of preventing the disease; but great care must be taken in performing the operation, the least touch being sufficient to preserve the potatoes from an attack, while one touch more will effectually prevent vegetation. Mr. Crawford expresses himself highly confident as to the success of this simple remedy when properly applied.

A NEW DOUBLE-FLOWERING CANNA.—The *Cultivateur de la Région Lyonnaise* says: Amongst other novelties, we have to note a magnificent variety of Canna with double flowers, which has been obtained, after repeated sowings, by M. P. Crozy, junior, horticulturist, 206, Grande Rue de la Guillotière, Lyons. It is a novelty and an undoubted acquisition, which we are delighted to see brought out for the first time here in Lyons. We lose no time in bringing it to the notice of our numerous amateurs. This remarkable double-flowered variety of Canna has been obtained from *Canna floribunda grandiflora*; consequently, the firm, bold, semi-erect foliage is very ample, and of a beautiful delicate green, much resembling that of its prototype. The double flowers are of medium size, and of a magnificent bright red colour; unquestionably it is a most valuable acquisition for summer planting along the borders of shrubberies, and the like. It will be observed that M. Crozy's success opens out a new field to raisers of seedlings to obtain varieties of flowering plants with ornamental foliage. The Canna with double flowers is not only a plant of great interest in a horticultural point of view, but it is just the sort of taking novelty calculated to give an impetus to the horticultural trades of the Lyonnais.

EFFECTS OF COAL-GAS ON TREES.—Some experiments have been recently made in the Botanic Gardens at Berlin to show the effects of coal-gas on trees. From the report in the *Moniteur Scientifique* we learn that a maple and two lime-trees, whose stems were respectively $3\frac{1}{2}$ and 5 inches in diameter, were exposed to the action of ordinary illuminating gas, which was brought to within 3 or 4 feet of their roots by a gas-pipe terminating in two small branches, and the whole being sunk $2\frac{1}{2}$ feet below the surface of the ground. One of the lime-trees was thus dosed at the roots with 50 cubic feet, and the other trees each with 100 cubic feet of gas per diem. The experiments commenced on 7th July; by the end of September the trees were perfectly leafless, although the others around them were still green. Their roots were dried up, the older ones suffering at the extremities. On the 7th January the supply of gas was cut off from the maple and one lime, but continued to the other. All three trees died soon after. Subsequent experiment showed that 25 cubic feet of gas disseminated daily in 576 cubic feet of soil was amply sufficient to kill any kind of tree growing therein, the effects being more speedily visible in proportion as the surface soil is closer of texture.

THE PATENT GLASS-CUTTER is a substitute for the glazier's diamond. A substitute of some kind has long been wanted, and in this simple instrument is admirably supplied. It consists of a small wheel-cutter fixed in a holder, in which notches are cut for taking the glass by the edge to complete the fracture after the cutter has traversed the line. Its simplicity is equalled by its efficiency—so, at least, we believe after having given it a fair trial. How much wear and tear it will bear remains to be seen; but as a new cutting wheel can be obtained for sixpence, and the instrument costs in the first instance only 5s. 6d., there need not be much anxiety as to the possibility of its wearing out. It can be obtained of the principal seed houses in the metropolis.

TO CORRESPONDENTS.

G. H.—A small charcoal stove might answer the purpose, provided the fuel is allowed to burn quite clear before the stove is taken into the house. A small gas heating apparatus would be the most desirable for a small house like yours.

X. Z.—The plant mentioned is naturally very shy-flowering, and requires a thorough season of rest. The soil should be kept quite dry during the winter. The plant received with your communication is *Diplacus glutinosus*.

MAGNOLIA GRANDIFLORA.—*H. S. P.*—This magnolia would do exceedingly well in the position mentioned in your letter. We would advise you to procure, as soon as convenient, a strong plant, and mark out a place about three feet square. Apply a barrowful of manure, and then dig it in, turning the soil up to a depth of about two feet. Plant as soon as the border is ready.

VIRGINIAN CREEPER.—*Ampelopsis.*—The Virginian Creeper may be propagated by pegging the young shoots down, and covering a portion of them with soil. By next autumn they will be furnished with sufficient roots to admit of their being separated from the parent plants, and planted where required. They thrive in almost any kind of soil.

COLEUS.—*Mrs. J., Brandon.*—The coleus may be cut down to within a short distance of the surface, but if the plants are in a cool house, the pruning should be deferred until the spring. In reference to furnishing the conservatory, see the *FLORAL WORLD*, September, 1873, page 272.

MYRTLES.—*An Old Subscriber.*—From the appearance of the leaves, we should say the pots are full of worms. It is very possible that the plants were turned out of doors too early in the season, and injured by the exposure to the cold before they had been properly hardened off. It may be that the drainage is out of order, and the soil has become sour in consequence of the stagnant moisture in it.

F. C., Teignmouth.—The climber was so withered and powdered that we could make nothing of it. The Clematis appears to be *Clematis graveolens*, Lindley, of which a woodcut figure is given in the *Journal of the Royal Horticultural Society* (i. 307). You can plant almost any of the climbers on a north wall in your good climate. The following are sure to succeed: *Ampelopsis japonica*, *A. tricuspidata*, *Berberidopsis corallina*, *Cratægus pyracantha*, *Calycanthus macrophyllus*, *Chimonanthus fragrans*, *Cydonia japonica*, *Jasminum nudiflorum*, *J. officinale grandiflorum*, *Euonymus radicans variegata*, *Stauntonia latifolia*, and *Ivies*, green and variegated, *ad lib.*

WORMS IN COMPOST.—*B. W.*—There is one infallible method of treating potting stuff if suspected of containing vermin of any kind, and that is to make the pots ready a day before they are to be used, and water the soil in them with boiling water. Scald also as much as you will want for filling in. Next day it will be none too moist to work with, and there will not be a live creature in it. A dose of boiling water round the wood-work of the bin will clear away wood-lice, and as for the stuff heaped up in the open air, earthworms will do it more good than harm, as long as it lies together. Earthworms should never be ruthlessly destroyed: they are appointed by nature to ventilate the subsoil, by boring in its channels for the admission of air. On grass they may be ejected when troublesome by means of lime-water.

ASPHALTING GARDEN WALKS.—*R. G.*—To asphalt your walk, make a good firm bottom of stones or other hard material, then mix two parts of dry lime rubbish and one part coal-ashes together, and sift out all the rough stuff. Put it in a heap, make a hole in the centre, and pour into it the gas-tar boiling hot. Mix all thoroughly together, and when about the consistency of mortar spread it over the walk, about three inches thick. Make it level as the work proceeds, and sprinkle sand over it. When cold run a roller over it, and in a day or two it will be set as hard as iron.

PEARS FOR PYRAMIDS.—*G. A.*—The following selection of pears will furnish a supply of ripe fruit from July to May, and will all succeed as pyramids on the quince stock:—*Doyenné d'Été*, *Jargonelle*, *Williams's Bon Chrétien*, *Beurré Superfin*, *Louise Bonne of Jersey*, *Beurré Hardy*, *Marie Louise*, *Autumn Nelis*, *Winter Nelis*, *Beurré d'Arenberg*, *Josephine de Malines*, *Bergamotte d'Esperen*, *Huyshe's Victoria*, *Glou Morceau*, *Knight's Monarch*, *Easter Beurré*, *Forelle*, *Madame Millet*. Select healthy vigorous trees, and plant as soon as possible.

ROSES FOR TOWNS.—*F. B., Leeds.*—Turfy soil and manure make a capital compost for roses. Have them on their own roots, and then if they are by the severity of the weather killed to the ground, they will break up as strong as ever in the spring. The following selection will do well in the neighbourhood of large towns, and therefore suitable for your purpose:—Charles Lefebvre, Maréchal Suchet, Pierre Notting, Prince C. de Rohan, Vicomte Vigier, Alfred Colomb, John Hopper, Madame Victor Verdier, Francois Lacharme, La Ville de St. Denis, Madame Domage, Victor Verdier, Anna Alexieff, Josephine Beauharnais, Lœlia, Madame E. Appert, Madame Knorr, Mademoiselle Marguerite Dombain, Marcella, Madame C. Wood. Plant in November, and well mulch the beds with half-rotten stable manure.

SNAILS IN FERN-CASES.—*S. W. H.*—The fronds appear to have been eaten by slugs or snails, probably introduced in the soil or with the ferns when the case was planted. To trap the vermin place scraps of fresh lettuce-leaf or slices of apple or potato under pieces of tile, and by searching the case at night you may catch the marauders at supper. But there is a very pretty way of exterminating snails and slugs in fern-cases, and that is to put in a few glowworms. They light up the ferns at night with quite a fairy-like illumination, and they hunt snails and slugs as cats hunt mice.

H. T.—Your pretty yellow flowering plant is *Diplacus glutinosus*, one of the mimulus family.

SELECT FLORISTS' FLOWERS.—*P. C. S., Leamington.*—*Twelve Pansies.*—Alexander McNab, Cherub, Locomotive, Andrew Smith, George Wilson, John Currie, Joseph James, Alice Downie, Lady Lucy Dundas, Queen, Mrs. A. Buchanan, Thomas H. Douglas. *Twelve Antirrhinums.*—Delicatum, Glorious, Jessie Dean, Monarch, Rosy Morn, Charming, Orange Boven, Fire Fly, George Gordon, Leopard, Striped Unique, Yellow Gem. *Twenty Dahlias.*—Julia Wyatt, Annie Neville, Harriet Tetterel, John Standish, Mrs. Saunders, Bishop of Durham, James Cocker, Miss Henshaw, James Backhouse, Paradise Williams, Yellow Perfection, Lord Derby, Sir Greville Smythe, Indian Chief, Mr. Dix, Yellow Standard, Maid of Essex, Kate Haslam, Mrs. Boston, Juno, Lilac Queen.

RAISING SEEDLING CARNATIONS.—*G. H.*—Your seed must be sown in March to enable the young plants to get strong by winter. It is not such a difficult matter as you suppose; it is of no consequence whether you use the ordinary pots or seed-pans; but, if you have a considerable quantity, and therefore require a considerable space for its reception, the pans are decidedly the best. They are easier to shift about, in proportion to their size, than the pots. Put plenty of drainage in the bottom—half full is not too much—and then fill the remaining space with good loam, full of fibre, and a liberal proportion of leaf-mould. Make the surface perfectly level for the reception of the seed, and after the seeds have been regularly sown over the surface, cover thinly with fine soil. Place the pans in a house or a pit where a mild heat is maintained. After the plants are up, shift them to a cold pit, and pot off into sixties, or prick out into a bed of good, rich soil, directly the young plants are large enough to handle conveniently.

PLANTING OUT CHAMÆROPS FORTUNEI AND HUMILIS.—*A New Subscriber* will be obliged for a few hints upon managing these beautiful palms out of doors. These palms are the hardiest of their tribe, and will do well planted out in a sheltered position; but it will not be advisable to plant them in the same exposed place as a *Pinus Austriaca* would thrive in. They require rich, well-drained soil; and if your garden has a cold subsoil, dig out a good-sized pit, three feet six inches deep, and, after putting a foot depth of broken brickbats in the bottom to form a drainage, fill in with good sandy loam, mixed with a fair proportion of rotten dung and leaf-mould. Plant firmly, and water when necessary.

PTERIS TRICOLOR.—*Miss Harris.*—It is a mistake to suppose that this beautiful fern requires a large amount of heat; for it never does better than when grown in a cool house from which the frost is kept. As the plant is in a bad state, and infested with scale, cut away the brown and half-dead fronds, and remove the scale from the others carefully. Repot in two-thirds peat, one-third light, fibry loam, and a good proportion of silver-sand and a few crocks broken small, with plenty of drainage, and try it in a house where no artificial heat is employed excepting to keep out the frost, or, say, to maintain the temperature at not lower than forty degrees.

EXOTIC ORCHIDS FOR EXHIBITION.—*Competitor* does not give us any idea as to

January.

what sum he can afford to pay for the twenty-five orchideous plants which he requires for exhibition; but this much we know—that, unless he can afford to buy good kinds, he had better not trouble about showing; for, unless they are good, no amount of good management will make up for their inferiority. A better selection than the following cannot be had. This is a capital time for purchasing orchids:—*Aerides Fieldingi*, *A. Veitchi*, *Brassia verrucosa*, *Calanthe veratrifolia*, *Cattleya Mossiæ superba*, *C. Skinneri*, *Chysis bractescens*, *Cypripedium barbatum nigrum*, *C. villosum*, *Dendrobium densiflorum*, *D. nobile*, *Epidendrum vitellinum majus*, *Lælia purpurata superba*, *Lycaste Skinneri*, *Miltonia Moreliana purpurea*, *Odontoglossum citrosimum*, *O. gloriosum*, *O. hastilabium*, *Oncidium ampliatum majus*, *O. crispum*, *Phalænopsis grandiflora*, *Saccolabium retusum*, *Vanda suavis*, *V. tricolor*.

NAME OF FERN.—*Emel.*—No. 1. *Pteris straminea*. No. 2. *P. tremula*.

CONIFEROUS TREES FOR DAMP SITUATIONS.—*F. B.*—The undermentioned are the best coniferous trees for damp situations:—*Abies Canadensis*, a slender-branched tree of considerable beauty, thriving in moderately damp situations; *A. cæcelsa*, the well-known Spruce Fir, succeeds admirably in damp situations; *A. Menziesii*, a tall pyramidal tree of the most handsome character, succeeds well by the side of streams; *Cephalotaxus Fortunei mas.*, a handsome, compact, evergreen tree, of medium height, succeeds in moderately damp soils; *C. Fortunei femina*, a cone-bearing variety of the species, and thriving under the same conditions; *C. pedunculata*, a handsome small-growing tree, succeeds well in damp situations; *Chamaecyparis sphaericea*, a handsome evergreen tree, of slow growth, thriving in marshes and wet soils; *C. sphaericea glauca*, a dense-growing variety of the preceding, with glaucous leaves; *C. sphaericea atrovirens*, a distinct variety, with shining green leaves, very handsome and desirable; *C. sphaericea variegata*, a very pretty variety, a portion of the branchlets of a bright gold; *Cryptomeria japonica*, a tall, handsome tree, succeeding in moderately damp soil; *Cupressus attenuata*, a handsome evergreen, succeeds well by the side of running water; *C. Lawsoniana*, a well-known evergreen of the most handsome character, thrives exceedingly well in damp situations; *C. sempervirens*, a free-growing tree, well adapted for damp soils in sheltered situations; *Juniperus communis*, a well-known, free-growing tree, thriving in damp and shady situations; *J. drupacea*, a very handsome shrub, well adapted for planting in damp soils; *J. Virginiana*, a medium-sized, handsome tree, grows freely in moderately-damp soils; *Larix Griffithiana*, a grotesque tree, with spreading branches, well adapted for planting by the sides of streams; *Libocedrus decurrens*, a handsome evergreen, well adapted for moderately damp soils; *Picea grandis*, a noble tree, succeeding admirably in low, damp situations; *Pinus contorta*, a small tree, succeeding in damp situations, but not desirable; *P. pumilo*, a small tree, well adapted for swampy soils and marshes; *P. ponderosa*, a handsome tree, of large size, growing freely by the side of streams; *P. rigida*, a tall tree, of large growth, suitable for planting in damp soils; *P. serotina*, a medium-sized tree, useful for planting in marshes and damp situations; *Taxodium distichum*, a handsome deciduous tree, in every way suitable for planting in wet soils; *T. distichum pendulum*, a very beautiful variety of the preceding, succeeding under the same conditions; *T. sempervirens*, a handsome evergreen tree, requires a sheltered situation, not open to the south; *Taxus baccata*, the well-known Common Yew, equally adapted for wet or dry soils; *T. baccata fructo-lutea*, a distinct variety of the preceding, with yellow berries; thrives under the same conditions; *T. baccata Dorastoni*, a distinct form of the species, with pendulous branches; *T. Canadensis*, a low-spreading shrub, succeeding admirably in damp and shady situations; *Thuja occidentalis*, a free-growing shrub, well adapted for forming hedges in damp soils.





BROMELIACIOUS PLANTS.

(With Coloured Illustration of Vriesia brachystachys.)

BY GEORGE GORDON.



THE Bromeliads comprise a large number of plants, widely differing in character, but possessing a certain family likeness, and agreeing so far as to require the temperature of a stove for their cultivation. One of the most distinctive and best known of the bromeliads is the Pine-apple, *Ananassa sativa*, which, like a large number of other plants belonging to the same natural order, is not sufficiently attractive to justify its being grown in the stove for ornament. A few of the known species are remarkably beautiful, and worthy of a place in the choicest and most select collection of stove plants. One of the best examples of this class is the lovely *Vriesia brachystachys*, which forms the subject of the coloured illustration in the present number. Another good example of the same class is the showy *Encholirion corallinum*, of which a woodcut accompanies these remarks. A few species are well worthy of a place in the stove when space can be found for them, because of their botanical interest: but it does not appear desirable to say much in reference to them upon the present occasion.

The plants comprised under the heading to this communication are amongst the most valuable of those adapted for amateurs who have not much space for the cultivation of stove plants, and who have not had much experience in plant-growing. They are all of moderate growth, remarkably attractive, whether in a small or large state, and require but a small amount of attention and skill to keep them in a good condition. Unlike a large number of things which require a regular course of stopping and training during the summer season to keep them within bounds, or have to be renewed annually from seeds or cuttings, the bromeliads will go on increasing in beauty and value, with no more attention than is required to keep them supplied with moisture. Such has been my experience with them, and I have no hesitation in commending them to the notice of those amateurs who have a stove, and are desirous of filling it with something better than coleus, and other soft things. They do exceedingly well with the free-growing orchids, and may be associated with them with advantage.

All the species of which it is my intention to speak should be grown in well-drained pots, and a compost consisting of loam, peat, leaf-mould and grit. The peat and loam should be fibrous, for, as some of the species are epiphytal, and grow in the forks of trees in their native habitats, it is essential that the compost should not be of a very close texture. To every two parts of loam and peat add one part of leaf-mould and a part of grit, which should be made up of equal proportions of small crocks and silver-sand. Well incorporate the whole together, and avoid breaking the peat and loam up too much, for the plants thrive best when the compost is rather rough

than otherwise. The leaf-mould may be dispensed with if difficult to obtain, and another part of peat employed instead. To secure perfect drainage, fill the pots to about one-third of their depth with medium-sized crocks, and cover with a layer of the roughest portion



ENCHOLIRION CORALLINUM.

of the mixture. In shifting them from one pot to another, remove the crocks from the old ball, and carefully separate the roots round the outside. This will enable them to strike into the new soil more readily than they would otherwise be able to. In all cases where they have not been well furnished with roots, reduce the old ball

considerably; but due care must be taken to avoid injury to the roots. Early in the spring is the best time for repotting them, and an annual shift will suffice to maintain them in a thriving state.

They should, as a rule, have a light position in the stove, for when enjoying a full share of light, they are more readily kept in good health, and produce finer spikes of flowers than when placed in a dark corner. Rather liberal supplies of water are required during the summer season, and moderate supplies during the winter, when at rest.

All those with leaves arranged in a rosulate manner, so as to form a vase or cup, must have water poured over them occasionally, for it is found that they succeed much better when the centre is kept full of water, especially during the summer season.

They are all propagated by detaching the suckers, which are formed at the sides, and potting them separately; but excepting under special circumstances, the suckers should be allowed to remain, for large specimens are much to be preferred to those of smaller size. In the *Vriesia* the chief beauty consists in the flowers themselves, but in the majority of bromeliads the flowers are comparatively insignificant, and the bracts with which they are accompanied are large in size, and very richly coloured, and quite surpass the flowers in beauty.

Those which can be the most strongly recommended for the amateur to commence with are—*Echmea fulgens*, a neat, free-growing species; *Æ. Mariæ Reginae*, a strong growing species of great beauty; *Bilbergia Moreli*, *B. thyrsoidea*, *Encholirion corallinum*, a very beautiful species of recent introduction; *Guzmania tricolor*, a beautiful species of rather large growth, producing white flowers and red bracts; *Nidularium Innocenti*, very attractive and beautiful; *Pepinia aphelandraeflora*, a very beautiful species, possessing the elegant habit of *Dracæna gracilis*, and the inflorescence of an *Aphelandra*; *Pitcairnea carnea* and *P. corallina* are both of medium growth, and produce fine racemes of flowers and richly-coloured bracts; *Tillandsia Lindenii* is very elegant in growth, and produces a profusion of flowers of the deepest blue; *Vriesia brachystachys*, *V. glazioviana*, *V. splendens*, and *V. tricolor* are all of great merit, and can be highly recommended. The variegated Pine-apple, *Ananassa sativa variegata* is one of the most beautiful ornamental-leaved plants in existence, and can be highly recommended for associating with the foregoing. It is proper to remark that it must be grown in a light sunny position, or the leaves will be drawn out, and lack that rich colouring which constitutes the charm of the plant.

STRAWBERRY LA GROSSE SUCRÉE is considered by Mr. Powell, of the Royal Gardens, Frogmore, one of the very best varieties for early forcing, and for early crops out of doors. It sets much better in a high temperature than any other known variety, and continues in bearing a considerable period. The fruit is large, handsome, solid, and of good flavour. It quite surpasses in every respect Keen's Seedling and Vicomtesse Hericarte de Thury, which are generally considered to be the very best early strawberries we have.

February.

GLOBE ARTICHOKE.

BY THOMAS TRUSSLER, EDMONTON.



THE Globe Artichoke is, it must be confessed, less useful than a large number of other vegetables which may be mentioned, for the produce is very small in proportion to the space occupied. Nevertheless, it will not do to ignore it altogether, for it is a great favourite with many, and the round heads, when nicely served, make a most acceptable dish by way of change. It should be looked upon as a luxury only, and when grown in villa-gardens, it may be planted in the piece of ground which divides the pleasure-grounds from the kitchen garden; for, during the summer season, the ample greyish leafage has rather an ornamental appearance. Indeed, it may be questioned whether it has not strong claims upon our attention as an ornamental plant, for it certainly surpasses in its bold and distinctive character many plants which at the present day are employed in the embellishment of the flower-garden. It is not, however, my intention to speak of its cultivation for decorative purposes, but to direct attention to a few of the most essential points in its management for the supply of its heads for the table.

Although the Globe Artichoke is naturally comparatively robust in growth, yet it does not succeed in many gardens so well as could be desired. This, in a large measure, is owing to its requirements not being properly understood, and, in some few instances, to the soil being quite unsuitable for it. To insure a healthy growth, and a good supply of fleshy heads, it must have liberal cultivation, and a well-drained soil. A deep sandy loam, liberally enriched with manure, is the most suitable. In poor, sandy soils it does not grow so freely as could be desired, and, on the other hand, on stiff clays it is apt to perish during very wet or very severe winters. In a soil of suitable character, there will not be much trouble in producing heads of a good quality.

An open position should be selected for the plantation, and to afford ample space for the development of the foliage, let the crowns be three feet apart. The early part of April is, perhaps, the best time in the whole year for making new plantations, and as the ground should be in readiness when the time arrives for planting, the preparations should be commenced without delay. The best course is to spread over the surface a layer (about four inches in thickness) of partly-decayed manure, and then dig or trench over the ground to a depth of eighteen inches. If this is done at once, and the surface left rather rough, the soil will be in capital condition for the reception of the plants. The strong offsets, taken off carefully, with a few roots attached to them, are the most suitable, and these may be obtained at the principal nurseries. Plant them three feet apart each way, water liberally to settle the soil, and also water them occasionally until they are thoroughly established; provided, of course, the weather is dry at the time. The only other attention

required during the first year will be to keep the space between the plants free from weeds.

Some diversity of opinion exists amongst practical men as to the necessity of protection during the winter, but experience, extending over a large number of years, has proved to me that the safest course is to protect. In a mild winter, such as the one through which we are now passing, they will take no harm from being fully exposed to the weather, but in severe winters, like that of 1866-67, they will be cut down to the ground line, and probably killed outright. The safest course is to apply the protection in November, and in doing this cut off the old outside leaves to within about twelve inches of the ground; prick the surface over with a fork, and pack a good thickness of dry leaves, short litter, or fern about the plants, in such a manner as to leave the young leaves above the ground. Let the protecting material extend to a distance of eighteen inches from the base of the plant, then cover it with soil or coal-ashes to keep it in its place.

In severe weather place a quantity of long litter over the exposed parts of the plants, and remove on the return of mild weather. In March commence to uncover by drawing the protecting material away from them, and in April it can be taken away altogether. In a few days after this removal examine the plants, and if there are more than three or four suckers to each, draw a little soil away from the base, and take them off without injuring the parent. The soil can then be returned to its proper place. The first year after planting it will not be necessary to remove any of the suckers.

The second year they will push up the heads freely, and these should be removed as soon as full-grown, whether required for the table or not, as they only weaken the plant and check the growth. It is impossible to say exactly when the heads should be cut, but, after a little observation, there will not be much difficulty in determining the point. As a rule, the right moment for cutting is when they have attained about two-thirds of their usual size. They can be kept in a fresh state for a considerable period after their removal from the plant, if cut with about nine inches of stem, and the stem inserted in wet sand. To keep them in the best possible condition, lift them out of the sand every third day, and cut off about half an inch of the stem. By this means the season may be prolonged until far into December.

The plants do not produce good crops after the fifth year, and it will be found advantageous to destroy them, and make a new plantation after they have borne four crops. To maintain a regular supply, one-half of the plantation should be renewed every alternate year, and, as far as practicable, fresh ground selected, for the chief cause of their failing to produce good crops after a certain number of years is the exhaustion of the soil.

THE COLLECTION OF PLANTS in the possession of H. L. Micholls, Esq., of Southgate House, Southgate, and with which Mr. Baines, the able gardener, has achieved such signal victories during the last few years, will be sold by auction towards the end of April next by Mr. J. C. Stevens.

February.

THE "GARDEN ORACLE" FOR 1874.



HERE has been somewhat of a lull lately in the publication of horticultural books, and this causes the new issue of THE GARDEN ORACLE to stand out very distinctly—in fact, its bright green cover shines on our table like a message of the coming spring, and we welcome our own work with as much gladness and surprise as if it had come unexpectedly before us. The immense annual sale of the ORACLE is the best proof we could have of the appreciation of our labours; but probably a very small proportion of our readers apprehend the labour its production necessitates. The list of coniferous trees embodies the observations of years, and we have again plodded through note-books and multifarious memories to make our selections of plants, flowers, fruits, vegetables, etc., as perfect as possible. The lesson in drawing is a novelty, for it will teach any one to make a fair copy of a print or flower in a few minutes, and, while it insures accuracy in the first attempt, it really trains the hand and eye for the higher varieties of artistic work. The essay on table decoration will, we trust, gratify our lady readers, and the few words on potato culture should, we think, do something towards rendering this important esculent more profitable than ever, and in some degree more safe against the assaults of disease. We hand over the ORACLE in its sixteenth issue to our constituency, with a deep sense of thankful regard for the support and sympathy we have enjoyed, and an assurance that our agreeable labours continually renew our youth, and enable us to smile at difficulties, as ceasing with the determination to overcome them.

S. H.

PLANTS FOR ROOM DECORATION.

BY MISS A. HASSARD, ST. RONAN'S, UPPER NORWOOD.



THE value flowering and foliage plants at the present season of the year even more than at any other time, their bright look and sweet perfume making us almost forget the frost and cold winds out-of-doors. Nothing gives a room such an elegant look as handsome groups of plants arranged about it. Just now, too, some of our most effective plants for this purpose are in perfection. Take, for example, primulas, heaths, lily of the valley, etc. Some persons prefer single plants dropped into china pots, or any other kind of ornamental cover, while others like them in groups. If the room be large enough, I much prefer the latter, as a far more effective arrangement of colour can be obtained in this way. Plants intended for the decoration of sitting-rooms should be well cooled off previous to being placed therein, for, if brought in fresh from the stove, they will not stand the sudden change of temperature and draught to which they will be subject; and if they be ferns, this will be even more visible. A few hours after their change of quarters their

beauty will be quite gone; but if carefully cooled off beforehand, nearly all kinds of plants will remain fresh for days, and in some instances for weeks. The soil of all pot plants intended for room decoration should be concealed, and for this purpose the three following materials are best, namely, silver sand (as white as possible), common moss, such as is found in woods or hedge-rows, and *Selaginella denticulata*, growing on the surface. The latter looks by far the best, and is the least trouble, as it does not require to be replenished, but will keep growing on as long as the plant is not disturbed. Nearly all ornamental china pots have saucers sold with them; but when paper or rustic covers are used, care should be taken to see that each pot is placed on a saucer of some kind, else the damp will penetrate through the rough pot, and spoil any table it may be laid on, even though a mat may be under it. In the same way, any wire stands or tables on which a number of plants are grouped should have an inside lining of painted zinc. In arranging a group of flowers, the second tier of pots should be raised a little above the outside row, and in the centre should be some graceful fern, dracæna, or palm, to stand up higher, and wave gracefully over the other plants. If the room is particularly warm and dry, or lighted by gas, the plants should be removed about every four or five days, and fresh ones brought in to take their place. Care should be taken to see that the soil is never allowed to get very dry, as, if young shoots or fronds once become shrivelled from this cause, there is a chance if they ever regain their freshness, no matter how much water may be given them. When a number of plants are being placed in a wire stand, moss should be put in between them, so as to pack the pots firm; and if the moss is wetted it will tend to keep the plants fresh a longer period than they would otherwise remain.

CULTURE OF SEAKALE.

BY M. EUGENE VARIN.



ALL who have travelled in England and Scotland will have observed that seakale (*Crambe maritima*) occupies an important place in the alimentation of Great Britain. In France, unfortunately, we seldom or never see it grown, except by a few amateurs. Horticultural treatises of fifty years ago make mention of it—a sufficient proof of the difficulties which beset the propagation of good things. I think it may be well to direct attention to this excellent vegetable, at once so wholesome, so easy of digestion, so suitable for delicate stomachs.

As its name imports, the *Crambe maritima* grows wild by the seashore, in saline sands. It is a species of *Crucifer*, closely allied to the cabbage tribe.

In taste it partakes of the broccoli and asparagus. Like the latter, it has diuretic qualities, but it leaves no disagreeable odour. It is a perennial, the edible portions being the petioles of the leaves,

which are reproduced every spring, as is celery, the cardoon, etc. As a comestible, it certainly deserves a place in our market-gardens, and its glaucous foliage has long been considered to entitle it to rank as an ornament.

Is it difficult to grow? I think not, as I shall endeavour to show.

Seakale likes a deep, rich, sandy loam, well incorporated with rotten stable manure, or better, leaf-mould, and with as good, healthy a subsoil as possible. It may be propagated in various ways:—

To raise seakale from seed in open beds, the seed should be sown in February and March, or even a little later. As they come up very capriciously, it is best to put four or five in each hole, covering them over with a couple of inches of earth, and keeping only one or two of the strongest plants.

They may be sown in heat in batches; but as the plants are often attacked by the flea-beetle, it is best to sow in pots, which should be plunged in a hot-bed, or put under glass, and the plants set out when the frosts are past. The first cutting is not taken until the third season—that is to say, in the second year of the sowing.

By cuttings: in this way we get the quickest crops. This operation is performed thus: We choose some seakale roots, which should not be too big—about the size of one's fingers—and cut them into sections of two to five inches long. The upper ends should be smooth, and the lower cut to a wedge. In this way we get the quickest-growing and strongest plants. These root-cuttings should be taken between the middle of February and the end of March. Two or three may be set together, so as to form a strong tuft. The plants should be at least twelve inches apart every way.

The best plan of making a bed is to get well-rooted plants; the bed itself to be raised a little above the surface of the ground, so that the roots, which are very long, may not have overmuch moisture.

By careful earthing up, we may easily get seakale in March and April, before asparagus makes its appearance in the market; the plants to be uncovered as they are cut, so as to make a fresh growth for the year following; but in this way the stalks are never so white and tender as when grown in heat, and the plant is only really good when it is as tender as possible.

Both rooted cuttings and seed should be planted in rows eleven inches wide, with alleys two feet in width between, in which dung is laid to hasten the growth of the plants. At the beginning of January a pot eleven or twelve inches in diameter should be set over each plant, or we may use frames, laid over with planks to exclude the light.

To get well-branching heads, they should be covered over with four and a-half inches of earth taken from the alleys, and the whole spread with litter or leaves. A uniform temperature of 47° to 50° Fahr. should be kept up by mulching the roots with litter.

The stalks should be cut close to the ground when they are two to four and a-half inches in length, but the heads on them should be suppressed as soon as they begin to form, to prevent the exhaus-

tion of the plants. This is the time for removing the pots or other cover. The plants stand the frosts well, the stools acquiring increased vigour therefrom.

Seakale thus treated will shoot again quicker than asparagus, so that another cutting may be made at the end of a week. A well-managed bed should last ten years, especially if it be well dunged from time to time with thoroughly-rotted dung.

NOTES ON NEW VEGETABLES.

BY A KENTISH GARDENER.



INCREASED attention has of late years been paid to the improvement of existing types of vegetables, and every year a large number of novelties are introduced to public notice. Some are new in name only, whilst others are no better than kinds we already have, therefore a certain degree of caution is necessary in purchasing, to avoid wasting money.

Taking them in alphabetical order, we have first of all the kidney beans. Of these the number is rather large, and to buy all is quite unnecessary. The most important of these is *Carter's White Advancer*, a dwarf heavy cropping variety, of great merit; the pods are long and fleshy, and produced in the greatest abundance; it is also valuable for first crops, because of its coming in quickly. *Osborne's New Early Forcing* was sent out last year, yet it is so thoroughly good for forcing, and early and main crops out-of-doors, that it well deserves a place here. *Cutbush's Scarlet Giant* is another good dwarf variety, remarkable for its productiveness and high quality. The price of this is only slightly in excess of the established kinds, and it may therefore be tried without much extra outlay. Several of the New Butter Beans were grown and certificated at Chiswick last summer, and are well deserving attention for their distinctive character and extreme productiveness. The *Dwarf Butter Beans* (black-seeded and white-seeded) attain a height of twelve or fifteen inches, and produce a profusion of thick fleshy pods, from three to four inches in length. The *Butter Bean Mont d'Or* differs from the two former in having a scandent habit, and producing pods from six to eight inches in length. The pods of all these are skinless, and are usually cooked and served up whole. The colour of the pods is a pale lemon, and when cooked they are less pleasing to the eye than a dish of the ordinary kinds. Nevertheless, they are well worth growing; and it may be mentioned that they are especial favourites in America and on the Continent.

Several new broccolis were brought prominently before the public last season, but the only one that was really good and distinct was *Perkins's Leamington*, a late self-protecting variety of great merit; it is, in fact, the very finest late broccoli we have, both as regards size and quality, and too much cannot be said in its praise.

Several celeries have been introduced of late, and the best of

these are the *Leicester Red* and *Major Clarke's Red*. Both are remarkable for solidity and high quality generally, but the last-mentioned is the most distinct, and, of the two, can be the most highly recommended, for it is the finest red celery we have for garden culture.

As usual, a very large number of cucumbers were exhibited as new in the course of last year, but the only one that could be considered really distinct and meritorious was the *Duke of Edinburgh*, exhibited by Messrs. Monroe and Wilkinson. This sort, under ordinary cultivation, attains an average length of fifteen inches, is of a fine colour and flavour, and produced very freely. It may be regarded as one of the best frame cucumbers we have. Another cucumber is being sent out by another firm, under the same name, which is said by competent parties to be valuable for exhibition purposes, because of its large size and handsome appearance.

The number of new peas is, as usual, very large, but the prices are so exceedingly high, that they are quite beyond the reach of all but the rich. *G. F. Wilson* is a fine dwarf wrinkled marrow, that can be highly recommended as a main crop variety. *James's Prolific* is another dwarf main crop variety of great excellence, which, when obtainable at the ordinary price, will be most extensively grown. Mr. Laxton has raised some very fine varieties, and the most promising of them at present in commerce are *William the First*, *Omega*, and *Fillbasket*, for they are alike remarkable for productiveness and good quality.

New potatoes are also exceedingly plentiful. *Rector of Woodstock* is a sound main crop variety, of first-class quality. *Late Rose* is an American variety, in the way of the *Early Rose*, but superior to it, and a better cropper. *Vermont Beauty*, *Bresee's Climax*, and *Bresee's Prolific*, three other American varieties, have also proved themselves to be well adapted for general cultivation in this country.

Amongst tomatoes *Hathaway's Excelsior* has well maintained its character, and can be recommended as the very best variety we have for general cultivation. The fruit is very large and solid, and quite free from ribs, and the plant produces heavy crops.

CELERY CULTURE IN SMALL GARDENS.

BY WILLIAM GARDINER.



It is by no means so difficult to produce good crops of this much-appreciated vegetable as some garden advisers would have us believe; and I hope to be able to point out the way by which the most successful results may be obtained with a very small amount of trouble.

The owners of small gardens should not attempt to have very early crops; for it necessitates the sowing of the seed in heat, pricking the plants out on a hotbed, and careful hardening off, which entails a very considerable amount of anxiety and hard work.

Now I would advise the sowing of two lots of seed, one about

the middle of February, and the other a month afterwards; that is supposing a considerable breadth is to be grown; but if it is intended to have only one or two rows, then one sowing of seed in March will suffice, for a succession may be secured by putting the largest plants out first. The principal point in celery culture is to keep the plants steadily growing from the time they make their appearance in the seed-pan until they are ready for the table.

Sow the seed in pans filled with a light compost such as would be formed by mixing together equal parts of sandy loam and powdery leaf-mould; cover the seed lightly, place the seed-pan in the cucumber frame or propagating pit, and maintain the soil in a moderately moist condition.

When the plants are well up, remove to a light position in the greenhouse or warm pit, for a high temperature will no longer be required. As soon as the plants are an inch or so in height, prick them off into shallow boxes, filled with a similar compost to that employed for the seed-pans. Put them about two inches apart each way, water them in with a fine rose, and shade during the first few days. Let them remain in the greenhouse or frame until about three inches in height, and they will then be strong enough for planting out on a bed of rich soil to strengthen, previous to being planted in the trenches. The bed of soil should be made up in a cold frame, or in a sheltered corner in the garden, and then covered with a portable frame, or mats. When no other protection besides mats can be afforded, the planting in the bed must be deferred until a period of warm, genial weather. In preparing the bed, make the bottom firm, then lay down a few inches of well-decayed manure, and cover it with two or three inches of friable soil.

Plant four inches apart each way, water liberally to settle the soil, and keep close for the first few days. Afterwards expose fully to the light, ventilate freely, and whenever the weather is warm, draw the lights off altogether, if in a frame; for anything approaching coddling must be carefully avoided.

In speaking of the planting-out, it is first of all necessary to consider whether the celery is to be grown in single trenches or in beds. The largest produce may be obtained, according to the space occupied, from the beds. In preparing the single trenches, it is simply necessary to open out trenches fifteen inches in width, and eighteen inches in depth. Put six inches of manure in the trenches, cover with four inches of soil, and they will be ready for the reception of the plants. In cases where the trenches run parallel to each other, they should be thirty inches or three feet apart.

In planting in beds, let the trenches be four feet in width, and the same depth as advised above. Put the same quantity of manure and soil as in the single trenches, and plant in rows of four each, across the bed; this will allow of their being twelve inches apart, and the rows must be the same distance from each other. The celery in beds can be very easily earthed up with the assistance of two boards.

Choose a dull, moist day for the planting operation, and lift with a trowel, for it is most important that the roots should be

injured as little as possible. Water them liberally when the planting is completed, and during the first week or ten days shade them in sunny weather. They should also have liberal supplies of water twice a week until well established. It is not necessary to fix any date for planting, because it should be done immediately the plants have attained a sufficient size.

It is not good practice to earth up too soon, but to commence by putting a few inches of soil over the roots when the plants are well established, and to repeat this two or three times at intervals of ten days each. The proper earthing up should be done at two or three distinct operations, and commenced when the plants are nearly full grown. The last earth should be applied about three weeks before it is required for use. Previous to applying the earth, tie the leaves up rather loosely with a piece of bass, for the purpose of facilitating the work and preventing the soil getting into the hearts of the plants. Dry weather should, as far as possible, be taken advantage of for earthing up.

By the course of procedure here advised, the crop will be ready for use early in October, and continue to yield a supply until the end of February, provided it is protected from severe frost.

After many years' experience I am convinced that *Turner's Incomparable White*, and *Williams's Matchless Red*, are the two best sorts for home consumption; for they are of medium size, and produce large, solid hearts, and in flavour are unsurpassed. The large-growing sorts are not desirable, for they are coarse in texture, and inferior in flavour.

NOTES ON HOLLYHOCKS.

BY JOHN WALSH.



NO difference of opinion exists as to the grand appearance of a mass or line of hollyhocks when in full bloom, provided they are in a soil or situation suited to them; and there is really no reason why they should not be met with in good condition in the gardens of the humblest amateur. As regards their cultivation there are no secrets; and when simply required for garden decoration, the labour and skill necessary for their successful management are by no means excessive. In the production of exhibition blooms or spikes, a thorough acquaintance with their peculiarities, and some amount of hard work and skill, are alike necessary; and the amateur should not attempt their cultivation for exhibition until he has become well acquainted with their management as garden flowers.

In the cultivation of the hollyhock, whether for exhibition or not, an open position is of prime importance, for if they are planted in a border, shaded and impoverished by timber, or, indeed, trees of any kind, they will not do much good. The growth will be weak, the foliage will become infested with red-spider, and what with yellow foliage and meagre flower-spikes, they will not add much to

the attractiveness of the garden. They succeed very well in shrubbery borders if kept well to the front, and a moderate quantity of well-rotted manure turned in where each plant is put. In commencing their culture, the proper course will be to procure from a nursery that can be depended upon for supplying the sorts true to name, two or three dozen old-established varieties. These will cost about eighteen shillings per dozen; and in two or three years a large stock may be worked up, by means of cuttings and seed. If it is felt that the cost of the plants is too heavy, a good beginning may be made by raising a stock from seed. Provided the seed is obtained from a good source, a considerable number of really excellent varieties may be obtained from a packet of seed. Indeed some varieties are reproduced quite true from seed, especially when the flowers have not been fertilized with the pollen from flowers of a different colour or inferior character. Cheap seed is practically worthless, for it invariably produces plants with single or semi-double flowers. This is explained by the fact that the semi-double flowers produce a much larger quantity of seed than perfectly double flowers; and the cheap seed is of necessity saved from them. As indicative of the value of good seed, I will just mention that in the catalogue of one of the principal growers of this flower, collections of twelve packets, saved from the finest flowers, are offered at 10s., and large packets of mixed seed at 5s.; second quality seed is about one-third cheaper.

Plants raised from seed sown early in February invariably flower the first season, and make a capital display of colour in the autumn. It is necessary to sow the seed in pots in the first or second week in February, and then partly plunge the pots in a brisk hotbed, for the purpose of assisting the seed to germinate quickly. The plants will not be long before they make their appearance above the surface; and as soon as they have made one rough leaf, draw the pots out of the bed to bring the plants nearer the glass. In about a fortnight afterwards, pot them off separately into small sixties, and return them to the hotbed, and there allow them to remain until they are nicely established, which will be as soon as the roots begin to run round the outside of the ball of soil. From the hotbed remove them to a warm frame, and keep rather close for about ten days afterwards. Then commence to admit air more freely, but the plants must not be exposed too fully, for it is necessary to keep the temperature sufficiently high to maintain a steady growth; and to guard against their being drawn, keep them near the glass. They must not be allowed to become potbound, and immediately the pots are well filled with roots, shift them into five-inch pots, and as soon as they are established, commence to harden them off, preparatory to their being planted in the border towards the end of April. If a hotbed cannot be commanded, sow the seed in March, in a cold frame; pot off separately, and plant out as soon as the pots are well filled with roots, instead of shifting into larger pots. These will not flower the same year, but they will become well established, and produce fine spikes the following season.

The months of March and April are the most suitable for putting
February.

out plants propagated in the autumn; and in rather mild seasons, provided the soil is in good working order, it will be advantageous to plant out early in March, as they will then have plenty of time to make new roots, and become well established before the hot weather sets in.

The beds should be prepared early in the winter, by being dressed liberally with good hotbed or stable manure, and then trenched over to a depth of eighteen inches or two feet. If planted in borders, let the rows be four feet apart, and the plants three feet from each other in the rows; but when grown in beds they should be three feet apart each way.

In the early part of June examine the plants and thin the spikes where necessary, and as a rule, not more than two or three should be allowed to each plant; for when all the spikes remain, they are necessarily weak, and the flowers are small and thin in consequence. When exhibition blooms or spikes are required, one spike to each plant will be quite sufficient. When the spikes are about two feet in height put a stout stake to each, and let it be of a sufficient length to stand four feet above the ground level when firmly inserted in the soil. Stakes of this height will be quite sufficient to support the spikes. Strong bast must be used, and the tying done as it becomes necessary for the purpose of keeping the spikes in an upright condition when in a young state. The surface may also be covered with partly-rotted manure in the early part of June, for the purpose of keeping the soil cool and moist; and in the case of beds near the dwelling-house, spread a little soil over the manure to prevent its having an unsightly appearance during the summer.

A thorough soaking of water once a week, during periods of dry weather, will be of immense assistance to the plants. As they suffer severely from being exposed to the effects of too much moisture during the winter season, it is much the best to propagate a stock annually, and winter it in a cold frame. There is not much difficulty in doing this, for the shoots which are produced at the base of the flower-spike will, if taken off in July or August, strike freely. Take them off with a heel, and insert four or five together in five-inch pots, and place in a cold frame. With ordinary attention they will soon be sufficiently rooted to admit of their being potted off separately. As it is of the first importance that they should not be cramped at the roots during the winter, put them in six-inch pots, and use a mixture of turfy loam and leaf-mould. During the winter season they will simply require protection from the wet weather and severe frost; indeed it will do them more harm than good to coddle them. When it is inconvenient to propagate annually and keep the stock in the cold frame, draw a little of the soil from about the collar of the plants, and fill the space with sharp silver-sand, as it prevents the lodgment of moisture about the crown, and also helps to keep them safe from the attacks of insects.

PRUNING GRAPE-VINES IN WINTER.

BY WILLIAM COLE,

Head-Gardener, Ealing Park, Middlesex, W.



O many amateurs have grape-vines in their greenhouses, that a few directions for pruning and dressing the vines will probably be of service to some of the readers of the FLORAL WORLD at the present moment.

Much of the success in grape-growing depends upon the manner in which the vines are pruned, and also upon its being done at the right time. The proper time for pruning the vines is undoubtedly when they are perfectly at rest; and then the amateur will be quite safe in pruning in January or February. It must not be delayed after the last-mentioned month, for the sap then begins to circulate freely, and there is a danger of the vines suffering from a loss of sap, which is technically known as "bleeding." So injurious to the vines is the loss of sap, that practical men make every endeavour to prune before the sap begins to move, and guard against the vines suffering from the cause here referred to.

The manner of pruning depends somewhat upon the style of training adopted; but as the most usual course is to train vines (planted in greenhouses) on the "spur" system, my remarks will refer more especially to that style of pruning. To avoid any misapprehension, I would observe that the main features of the spur system are to train up a single rod from each vine, and to have lateral shoots at equal distances apart on each side of the rod. These are pruned back to within one or more buds of the base of each lateral. No hard-and-fast line can be drawn as to the number of buds to be left to each shoot, but when the wood is strong, and the lowest bud prominent, the shoot may be cut back to within about half an inch of it. On the other hand, if the lower bud can hardly be seen, the safest course will be to prune to the second bud. There will be no difficulty in obtaining plenty of young wood, even if the shoots are pruned nearly close to the main rod; for the dormant buds will push from the base of the lateral, but they will not be of the same strength as those higher up, and moreover do not often show fruit; and even if they do, the bunches are small. Where there are two laterals to one spur, it is a very good plan to prune the one nearest to the main stem below the lowest prominent bud, and the other in the manner advised above. By this means it is possible to keep the spurs close at home, for next year the top shoot and the spur also may be cut back to the lower lateral, and that in its turn pruned to one or two buds. A sharp knife should be used, and the cuts made in a slanting direction.

When the pruning is completed, remove the loose bark from the old rod, which can be taken off with the thumb-nail, and then wash all the wood thoroughly with hot water and a little soft-soap; use a rather hard brush, and take care to thoroughly work the brush into crevices about the spurs, for the larvæ of red-spiders and other

enemies to the grape-vine lurk in these, and the washing will be of small service if it is not of the most thorough character. In washing the young wood, use very little soft-soap, and avoid injuring the buds. The soft-soap should be in a saucer, and the brush can then be dipped into it as may seem desirable. After the washing is completed, dress the vines with a mixture of sulphur, soot, and tobacco-juice. To this may be added sufficient clay to give the mixture the consistency of paint. If the preparation of this composition is attended with any inconvenience, the vines may be dressed with Gishurst compound, which may be obtained at all nurseries and seed-shops. The smaller-sized box of the compound, costing fifteen pence, will be more than sufficient to dress the vines in a greenhouse. The compound should be used at the rate of about 6 oz. to the gallon of water. Use soft water, and let it be boiling-hot when the compound is added to it. Let the dressing be well worked into the crevices with a small painter's brush, and then fasten the vines up in their proper places again.

STANDARD CHRYSANTHEMUMS.

BY ADAM FORSYTH,

Brunswick Nursery, Stoke Newington, N.



FROM the inquiries which reach me from time to time, it appears that the cultivation of standard chrysanthemums is not thoroughly understood in some districts; and I have ventured to offer a few hints on the subject for the guidance of those readers who may be in need of information.

Although the production of standards is rather more difficult than of dwarf-plants, they well repay the extra labour requisite in their cultivation, for they are most useful to break the monotony of a display, as their round heads on clear stems stand up above the dwarf trained plants, and have a very beautiful appearance. The merest beginner may grow very pretty standards by following the directions I give; but it requires some practice to produce standards of first-class excellence, hence we do not often see at exhibitions good examples of this class. Some growers keep their standards several years, and the stems thereby become very stout and strong, and if well managed, they have fine heads. But all the standards I have exhibited in my winning collections have been yearling plants—that is to say, raised from cuttings and grown to full dimensions in one season, after which they are destroyed. The reason I prefer yearling plants is that the old ones are not to be depended on; the old wood may die in the winter.

As ornaments for the dinner-table are in demand, I would suggest to amateur gardeners that standard pompones are admirably adapted for the purpose, as they do not interrupt the view across the dinner-table, their heads being above the line of vision when the

guests are seated, and they have a delightful appearance under artificial light.

The way I treat them is to select good strong cuttings as early in the spring as possible; and when well established in small pots they are shifted into 48's, kept in the greenhouse, and staked the height I want the stem to grow, which is generally from two feet six inches to three feet. After they have attained that growth, they are then stopped; the secret being to get as many breaks as possible from the first stopping to form the framework of the head; all side-shoots on the stem must be removed, but not the foliage. I invariably shift them for the last time about the middle of June; they are then plunged like the others, secured at the neck of the plant, to prevent the wind breaking them, and liberally supplied with manure-water. The varieties best adapted for this purpose are the early and free-flowering sorts, so that they can be stopped a fortnight later than the others. As a long season of growth is desirable, the amateur may be led to take autumn cuttings for the formation of standards. I feel bound to say that experience has taught me that spring cuttings are far preferable, as they can be kept growing from the first, and they have such health and vigour, that if properly cared for, they make fine free heads, which plants from autumn cuttings will not always do.

In the management of standards, as well as in the cultivation of dwarf specimens, it is well to observe that the young buds are apt to suffer much from the attacks of green-fly. Whenever this pest makes its appearance, the tips of the shoots should be dipped in tobacco-water, or what will perhaps have a more permanent effect, be dusted over with tobacco-powder.

The compost I use is one-half rich loam and one-half well-rotted dung, with a little leaf-mould, and a liberal sprinkling of sand added. The pots are drained with oyster-shells, and pounded oyster-shells may be advantageously mixed with the compost.

The liquid manure used is made up in the following way: I have a large tank, into which I put a sackful of soot and a barrowload of cow or sheep's dung, or a half of each, it being filled with rain-water; the whole is stirred frequently for a few days, and then left to settle before being used.

Before drawing my remarks to a close, I wish to impress on amateurs the necessity of avoiding exciting them with fire-heat, more especially when the buds are bursting, because it takes the colour out, and frequently makes a good incurved flower reflex. On the other hand, they must be protected from frost and storms, and hence a cool conservatory is the best of all places in which to flower them.

A NEW GRAPE, under the name of *Gros Doré*, has been introduced to public notice by M. N. Ganjard, of Ghent. It is figured and described in the last number of the *Bulletin d'Arboriculture*, and is said to be a desirable variety. The berries are round, of a rich amber colour, slightly perfumed, and rich. It attains maturity about a fortnight earlier than the Black Hamburgh, when grown in the same house with that well-known variety.

DEFIANCE TO GREENHOUSE FOES.

BY GEORGE SMITH.



WITH the return of genuine spring weather the various insect pests which usually attack greenhouse plants will become active; and if the plants were badly infested last year, they will occasion the amateur an immense amount of anxiety and considerable hard work to keep them in subjection. In almost every instance the presence of insect pests is an indication of neglect or bad management; for when the plants are properly attended to, it is seldom indeed that the plant-pests occasion much trouble. They do not often put in an appearance in sufficient numbers to do much harm when the house is kept thoroughly clean, and the plants in a thriving condition. As "prevention is better than cure" in this case, as in many others, I purpose offering a few remarks on the pests which give the most trouble to the amateur by reason of their persistency and the mischief they do when they attain a firm foothold, and I hope to be able to point out the way by which they may be prevented from obtaining a foothold in the plant structure.

In the first place, it is necessary to say that one of the chief causes which will speedily produce one or more of the enemies which will be mentioned as we proceed, is disregard to the common rules of cleanliness in the management of structures. Dirty pots, grimy stages, and moss-covered soil, with an accumulation of decaying leaves in and about the plants, will soon be the means of the inmates of the house becoming infested with various kinds of insects that will speedily cripple their growth, and not only spoil their beauty, but endanger their lives, if unmolested. Another fruitful source which is highly favourable to the attack of mildew and the production of green-fly, is a stagnant atmosphere, produced by keeping the house closed during dull damp weather, more especially if the temperature is mild, and the outward atmosphere quiet, and loaded with moisture, as was the case on several days during last month.

GREEN-FLY.—Some amateurs fail to see the necessity of ventilating their greenhouses unless the sun is shining brightly, so they keep them shut up on still, mild, cloudy days, under the false impression that the plants do not need fresh air; in fact, they believe they would be better without it, and for days together they are consequently enveloped in a stagnant atmosphere, which is extremely hurtful. This is injurious in a high degree, as, if it does not directly produce an attack of green-fly, it indirectly renders them liable to be attacked, as, being in a weak, succulent condition, brought about by an insufficiency of fresh air, they have not the health and vigour to withstand their ravages, as have those of more robust and hardy constitution. The most careful cultivators change the internal air of their houses as frequently as possible, by starting a good brisk fire for two or three hours early in the mornings of dull days, thus

creating a current of fresh air through the house by opening top and bottom ventilators, which in its course dispels damp, conveying at the same time health and vigour to the occupants of the house. Extreme and sudden variations of temperature is another cause of the production of green-fly; it should therefore be avoided as much as possible, not only to guard against its appearance, but also as injurious to the maintaining of all plants in a healthy vigorous condition.

The MEALY BUG and WHITE and BROWN SCALE are, with the exception of thrips, perhaps the worst pest which any valuable collection of plants can be infested with. They are decidedly the most difficult to exterminate, for nothing but difficult and tedious measures will avail. To prevent their making an appearance, the utmost caution is necessary. Have a vigilant eye upon all new introductions before they are introduced into the house among other plants, by seeing that they are properly cleansed of all insects with which they may be infested. The structures in which they are grown should also be scrupulously clean. It is astonishing what clean water and a little of the right sort of labour will do to maintain all plant-houses in a sweet, wholesome condition, if they are otherwise properly managed. Cobwebs hanging here and there, and crevices full of dust and dirt, and patches of mortar hanging from the walls, are the places in which many of the worst enemies of the gardener find comfortable winter quarters. They ought, therefore, not to be allowed to exist, as the surest means of not affording vermin any snug corner in which they may lodge themselves until a more favourable season draws them forth to begin life afresh. A deficiency of light during the short dark days of winter is also favourable to the spread of these pests; a judicious distribution of the plants, so as to offer the least obstruction to its rays penetrating all parts of the house, should be carried out, and also see that the glass, both on the roof and sides, is free from dirt, and not half-covered with film, as we sometimes see it.

The THRIPS are destructive pests, especially amongst azaleas and vines, and none are more troublesome to get rid of. A dry, confined atmosphere is sure to bring an attack of them, as also will a neglect of the precaution of frequently syringing those subjects which are most liable to be attacked by them. But perhaps the thrip is nowhere more perplexing than when it shows itself in the fernery, which it sometimes does amongst stove-ferns, the result, frequently, of too dry an atmosphere and an insufficiency of air. But more generally it is brought into the house by some addition to the number of plants, either from the nursery or some other garden. It is therefore the safest plan to subject each new-comer to a series of gentle smokings with tobacco previous to placing it in the collection.

The RED-SPIDER is unfortunately too well known, as we may sometimes find it in the best-conducted gardens. Indeed, it is not always possible to keep it under, and there are so many circumstances favourable to its production, that we really cannot seriously find fault if we see it occasionally obtaining the mastery over the

cultivator. Let there be a deficiency in the supply of water, or a sickly tree or plant in the house, and red-spider will immediately appear, and if allowed to obtain a footing, it will be a difficult matter to get clearly rid of it again. But there is a feature in its character which, when understood, gives the gardener a chance to keep it at bay, and that is, that it rarely attacks any plants until it has some fully-developed leaves to feed upon. Therefore, by adopting the most stringent measures in the early stages of the growth of the trees or plants that appear most subject to attack, by maintaining a vigorous action in all their organs, and by keeping the atmosphere of the house in which they are growing as cool and moist as it is safe to do, it is possible to keep away the spider. Better advice for the prevention of the red-spider it is not possible to give.

TAP-ROOTED VEGETABLES.

NO. I.—THE CARROT.



HERE is no class of esculent vegetables that more distinctly record in their appearance the character of the cultivation they have obtained, than those that produce tap-roots, such as carrots, parsnips, salsifys, and scorzoneras. You may scratch the ground, and refuse it manure, and yet obtain good cabbages and cauliflowers, if the soil is naturally strong, the season kind, and the plants are put out at the right moment. So it is with many other vegetables for which we prescribe good cultivation; but it is not so with the tap-roots, for if the ground is prepared for them by scratching, the roots will be short, ugly, and, if the season happens to be hot and dry, they will be of a woody texture, and pierced by wire-worm and canker, so as to be scarcely worth the trouble of cooking: so the first step towards producing a crop of tap-roots worth taking up is to prepare the ground by deep digging, and, as a rule, the digging should be two spades deep and thorough. These roots are so universally esteemed, and in some instances so necessary to the comfort of the household, that it is scarcely proper to consider what is the proper soil for them, for, whatever the soil of the garden may be made of, it is expected at least to produce a few carrots, parsnips, beets, and salsifys. However, as we have the growing rather than the cooking and eating to think of, we must confess that the subjects before us are somewhat fastidious as to soil, and hence it is not possible everywhere to do them justice, unless considerable labour and expense be incurred—more, perhaps, than the result aimed at would be worth. For any tap-rooted vegetable we require a deep, fertile, sandy loam, from which wire-worm has been pretty well eradicated. Heavy clay lands are not well adapted for the purpose, if newly broken up, but old gardens in clay and heavy loam districts, usually produce fine tap-roots, owing, of course, to the frequent deep stirring, and manuring, and mellowing the soil has had for a series of years. It

is a golden rule for the careful gardener to trench and lay up in rough ridges in autumn all the plots intended to be sown with tap-roots in the spring. By this means a deep, kindly tilth is secured, as well as a good seed-bed; for when the dry days of March return, it is but a small task to knock down the ridges, and break the clumps, and make a nice crumbly bed for the seed, which must be sown rather nicely; in fact, everything in the cultivation of these roots must be done nicely, or there will be no nice result at all. But with a good beginning, there is a good prospect of a good end, for it must be remembered as a set-off against the appearance of trouble that we have at starting, that these things do not require transplanting or watering, and, as a rule, it is very easy work to thin and weed them; so that it may be fairly said, if you give them a good start they will take care of themselves to the end of the journey.

THE CARROT claims consideration first, because it is used in every household. For a main crop in good garden soil the ground should be dug two spades deep, without manure, and a good seed-bed should be secured by the first week in April, when the seed should be sown. The best course of procedure is to line out the ground in four-foot beds, with alleys of a foot wide between, and sow in drills drawn across the bed ten inches apart, leaving at the final thinning only four or five plants in a drill. This plan will insure a handsome and a profitable crop with the least possible amount of labour, for the hoe can be plied between the rows most conveniently, and weeding and thinning can be performed without putting the foot on the ground between the plants. But a rougher method may be followed on a clean, sandy soil, well adapted for carrots. The ground being ready, the seed may be sown on the flat in drills a foot apart, without alleys, and the cultivator will then have to go amongst the crop to weed and thin when necessary. If the soil is too poor, a good bed of manure may be laid at the bottom of the trench in preparing the ground, but it must never be mixed with the soil, for that causes the production of forked roots, which are as wasteful as they are ugly. It rarely happens, however, that manure is really required for this crop, for the poorest sand will generally afford it nourishment enough, if thoroughly well dug to enable the roots to penetrate deeply for whatever they can find from which to elaborate the fleshy root. The root of a carrot has been traced to a depth of twelve feet; and we may conclude, therefore, that when properly encouraged, the plant obtains its living on land that few other crops ever touch; that is, the deep substratum that lies beyond reach of plough or spade. We should always prefer to use manure liberally to aid crops that require high feeding near the surface, such as cauliflowers, celery, and onions, and to grow tap-roots without manure on these plots the next season; and such for many years past has been our practice.

THE SCARLET HORN CARROT is one of the most elegant and delicate vegetables at our command, when properly grown, but comparatively worthless when mismanaged. To become familiar with this variety in its best possible condition, one must dwell in Paris

for a time ; but they are well grown in first-class English gardens, and Covent Garden Market is fairly supplied with them.

At whatever season these are required, *they must be grown quickly and drawn early*, or they will be comparatively worthless. If they are managed in precisely the same manner as radishes, complete success might be expected ; and in fact, we may so direct, and quit the subject. But fuller information will be required, and we begin by describing how we have obtained for our own table delicate dishes of

FORCED HORN CARROTS.—The successional sowings must be regulated by the demand, and we may reckon the season for the roots to extend from November to May. In a majority of instances, it will be early enough to begin in January, when a good hotbed must be made of stable manure that has been two or three times turned ; and on this must be spread six inches depth of a mixture consisting of equal parts of the mellowest garden loam, hotbed manure rotted to powder, and the cleanest leaf-mould. If materials for such a mixture are not available, put on good light soil from an old cucumber-bed, or any other similar source. In this case the roots will be paler in colour and slower in growth than if aided by the compost first prescribed. When the heat is steady, at 75° to 80° , spread a thin coat of thoroughly-decayed manure on the surface, and on that sow the seed in drills three inches asunder. Should the heat rise above 80° , give a little air ; but otherwise keep the lights close, to promote quick germination. The heat must be kept up by linings, and water must be given as required to keep the bed always moist ; and as the crop advances, air must be given regularly but cautiously, and thinning must be commenced in good time. As the roots are to be drawn when as thick as a man's finger, they may be left rather thick in the rows. The French market-gardeners plant lettuces and sow radishes in the beds prepared for horn-carrots ; but from careful comparison of different modes of procedure, we have come to the conclusion that the carrots should have all the ground to themselves ; for when another crop is grown with them, the roots lack the beautiful colour that is so much prized, and they grow less rapidly, and are less sweet and tender.

Succession-beds will be made as required, and as a matter of course, as the season advances, frames may be dispensed with, and regular coverings of straw will serve instead, precisely as in growing early radishes.

It will assist the beginner to know that a bed sown the first week in January should supply nice little carrots in the middle of March, and continue the supply to the end of April. A succession-bed sown the first week in February will carry on the supply from the beginning of April to the end of May, and then we should begin to look for supplies from hotbeds and sloping borders sown in March, and assisted with dry litter without frames. Thenceforward the crops of horn-carrots should be grown in the open ground, but always on a light, rich soil, containing a large proportion of thoroughly rotten manure, which promotes quick growth, fine colour, good flavour and tenderness.

Carrot-seed may be kept two or three years if there is a considerable bulk of it, but small parcels are rarely to be trusted if more than one season old; and the fresher the seed the better in all cases, as it has no albumen to sustain its vitality. In sowing it is not difficult to separate the seed sufficiently in the fingers; but if there is a large sowing to be done, it is advisable to mix with the seed a little dry sand, and rub the mixture between the hands, as the seeds cling together, and wasteful sowing renders the labour of thinning additionally tiresome. Always thin as early as possible, and throw out the thinnings on the bed, as they are of no use whatever for planting.

If a few delicate little carrots are required in the summer, and none of the horn variety have been sown, a few of the forwardest young roots may be drawn from a bed of long or intermediate main crop, and they will answer very well. If the ground is hard when they are wanted, loosen it round the roots to be pulled, so as to get a firmer grip, and draw gently, so as to obtain them complete. If carelessly or hurriedly drawn, they will snap, and leave half behind, which renders them but ugly stumps at the best.

The best way to store carrots, is in dry earth in a shed. Ours are packed up in squares against brick walls, in the root house, and are covered with potting compost, to economize time, as the roots are kept near the potting-bench. So long as they are not exposed to the air, and are kept cool and nearly dry, they will keep in perfect condition, but frost destroys them; warmth causes them to sprout and become woody, and if quite dry they shrivel. They may be pitted in sand on the open ground if the pit is covered with some rude thatch to keep out the weather.

In the case of a nice bed of horn carrots fit for use in the latter part of the year, we should prefer to draw them as wanted, and should protect from frost by spreading over them earth taken from the alleys, and over that lay thatched hurdles aslope.

VERMIN do but little mischief to the carrot in old gardens, when the ground is well dug, but in newly-broken pasture land the wire-worm is sometimes so plentiful that the roots are riddled to an extent that renders them scarcely worth digging. In such a case, a course of procedure that will pay well may be prescribed. In the first place trench the ground and put manure at the bottom of the trench, turning the sod over on the manure, and the second spit on the top. This should be done in the autumn, and the land laid up in ridges as roughly as possible. In the early days of March lay potatoes in the troughs and roughly cover by breaking down the ridges. In the course of a week take up the potatoes and cut out from them all the wire-worms, which, of course, are to be destroyed. The land may now be dressed, and the carrot-seed sown, and a good crop may be expected.

Land so prepared will be in capital condition for a regular course of culture. The potatoes employed to trap the wire-worms should be taken fresh from the clamp or store, for those that have been sprouted for seed will be too bitter for the worm. When the worms are removed, the potatoes can be spread out to sprout

for seed, and thus the only cost of effectually clearing the ground of wire-worm will be the labour it entails, and that will be paid for in the necessary knocking about the soil will obtain.

THE SELECTION OF SORTS will never occasion perplexity. The finest of all is the *Long Red*, or *Surrey Red*, which requires a warm, deep, sandy soil, to grow it to perfection of form and colour. A more profitable variety is the *Altringham*, which always grows out, and has a green top. This is a coarse but useful root. The *White Belgian*, which is much valued for cattle food, makes a nice table vegetable; but is neither so sweet nor so handsome as the long yellow. It is, however, well adapted for newly-broken grass-land, because if riddled by wire-worm, the horses make no objection, as they are not so fastidious as we are about the appearance of food. The best sorts for shallow soils are the *Scarlet Intermediate* and the *Common Short Horn*. For forcing, the little *French Horn* is alone suitable.

The ashes of the carrot-root contain 32 per cent. of potash, 13 per cent. of soda, 9 per cent. of lime, and $8\frac{1}{2}$ per cent. of phosphoric acid. Were it not for its deep rooting, it would evidently be an exhaustive crop; but as remarked above, the root searches in a district beyond the ordinary reach of plough or spade. With the small fancy kinds, however, the case is different; and hence, as they make all their growth near the surface, they require nourishing soil of a very mellow texture.

S. H.

THE GARDEN GUIDE FOR FEBRUARY.

"Then came cold February, sitting
In an old wagon, for he could not ride,
Drawne of two Fishes for the season fitting,
Which through the flood before did softly slyde
And swim away; yet had he by his side
His plough and harness fit to till the ground,
And tooles to prune the trees, before the pride
Of hasting Prime did make them burgein round.
So past the Twelve Months forth, and their dew places found."

SPENSER.



FEBRUARY is usually the driest month of the year, and, in a marked degree, less cold than January. In London, the average mean temperature is $38\frac{1}{2}$, the range of the thermometer being from 21° to 53° . The mean of the barometer is 29.94; the mean rainfall is 0.74, or three-quarters of an inch. The prevailing winds are S.W., W., and N.W. The weather is usually very variable, bright, promising spring days being suddenly succeeded by scowling, tempestuous weather, or a damp, warm atmosphere, changing quickly to keen dry frost, and a movement of the wind towards N.E. The past two months having been unusually dry, the coming month is likely to be characterized by a rainfall above the average. Severe frost is not to be apprehended, but we may have long periods of cold, comfortless weather

without the compensation of ice to skate on, or snow deep enough to charm us with its beauty.

If the weather should continue mild for some time, many garden plants will come into flower. For some time past we have been enjoying the delightful odour of the Italian coltsfoot, and we see troops of violets coming in the warmer nooks of coppices and shrubberies. The Christmas rose has flowered bravely, and will now be succeeded by other species of helleborus less beautiful, but not without attractions. Indeed, the sombre *H. fœtidus* presents an elegant appearance as we see it now lifting up its curious inflorescence. The white *Arabis*, the yellow *Forsythia*, the purple *Mezereon*, the herbaceous *Erica*, and the very elegant *Epimedium* will soon show their welcome flowers to proclaim silently, but with power, that "winter is going, and none would call him back."

The garden-work of February has for its chief object to prepare seed-beds, and to accomplish certain sowings and plantings that, weather permitting, cannot be finished too early. Peas and potatoes should have first consideration, and if any earthwork or tree-planting remains unfinished, all the strength possible should be brought into requisition to make an end of them quickly and properly.

FLOWER GARDEN.—Any alterations that may be on hand should be completed without delay, for the ordinary routine of garden-work will be quite sufficient to occupy the hands and head for the next two months. New turf should be laid down as speedily as possible, to enable it to get rooted before the dry, hot weather is upon us. This is also a good time for turning and making gravel-walks, and for renovating and making new box edgings, as it gives the one time to get consolidated, and the other rooted, before summer. Draw a little soil over the points of any of the bulbs that may be making their appearance above ground, or, better still, cover the beds with a few inches of cocoa-nut refuse.

GREENHOUSE.—In frosty weather use just sufficient fire to keep the frost out, as the employment of a large amount of fire-heat at that time is injurious to nearly all the greenhouse plants. It is wrong to suppose that it makes little difference how high the temperature is, so long as the frost is kept out. After two or three damp days, light a fire to warm the pipes, to enable the ventilators to be open, without the temperature being materially lowered, and at the same time set the air in motion, and drive out the stagnant atmosphere, which soon accumulates without ventilation. A few fuchsias should be started in a genial warmth, to furnish cuttings for growing on for midsummer and autumn flowering. Autumn-struck plants of show and fancy pelargoniums should be potted in five or six-inch pots, without further delay, and they will then make fine plants for conservatory decoration. Camellias should be carefully watered, for, if allowed to get too wet or too dry, they will soon shed their buds. Sudden changes of temperature are equally as injurious; therefore, any required to flower early should go through two or three temperatures before they are finally landed in the forcing-house. Unless this can be done, they had better be

allowed to come along in the greenhouse, for there will be but small chance of getting the flowers to open. Ferns must be kept rather dry, as they are now at rest, and unable to absorb a large amount of moisture. Tie and train all plants intended for exhibition, whether hard or soft-wooded, if they require it, for there will be little time for this kind of work next month. Look after green-fly, thrip, and mildew. Fumigate with tobacco or tobacco paper for the two former, and dust with sulphur for the latter. All hard-wooded plants require free ventilation, and soft-wooded kinds to be near the glass, with sufficient air to prevent their drawing up weakly. This is a very good time to repot all the lilioms, if it was not done in the autumn, which was the best time, as the pots would now be full of roots, and the bulbs able to start away strong, instead of having to make roots.

STOVE.—Hard-wooded plants, such as *Ixoras*, *Rondeletias* and *Francisceas* intended to be cut back should have attention at once. They will break stronger, and the young growth will be more thoroughly matured than would be possible were the pruning left until they get into full growth. Plants of this class must not be “dried off” like bulbous plants, but they must have no more water than is sufficient to keep them in good health. This is a good time for starting *Achimenes*, *Caladiums*, and *Gloxinias*. Good fibry loam, peat, and leaf-mould, in equal quantities, with a sixth part of sharp silver-sand, will grow all these plants to perfection, if they receive good management in other respects. The *Caladium* pots should be covered with a layer of cocoa-nut refuse to keep the soil moist without its requiring to be watered. Shake out ornamental-leaved *Begonias*, and repot in the same compost as above. *Allamandas* should be pruned and re-potted some time this month. Do all the watering in the morning. In bright frosty weather sprinkle the floors with water early in the day. This is a capital time for waging war against white and brown scale and mealy bug. If all the plants are gone over in a thorough manner at this season, there will not be half the trouble with them during the remaining part of the year as there otherwise would be.

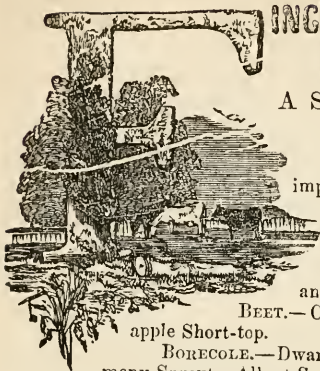
KITCHEN GARDEN.—Continue to prepare the ground ready for the summer crops, so that there may be no delay in getting each crop in at its proper season. With this object in view, every plot of ground should be manured and dug directly it becomes vacant. It evinces a great want of neatness and order to see whole quarters covered with old stumps of broccoli and winter greens until the moment they are required for other crops, apart from the injury arising to succeeding crops through the non-pulverization of the soil. This is a good time to plant chives, garlic, horseradish, Jerusalem artichokes, rhubarb, and shallots, and also to propagate all the perennial herbs by division and offsets. Sow in sheltered positions Walcheren broccoli, Brussels sprouts, Early York and red cabbage, Early Horn carrots, chervil, leeks, lettuce, parsley, long and turnip radishes, early Ulm savoy, spinach, turnips, and a good breadth of Veitch's Perfection pea. Towards the end of the month a sowing should be made of Windsor beans to succeed the Mazagan

sown last month. Plant out autumn-sown cabbage and lettuce if the soil is in a nice friable condition. All the seed-potatoes should be spread out to enable them to form hard purple sprouts by planting time.

FRUIT GARDEN.—The planting of all kinds of fruit-trees must be finished at once, for when left until vegetation commences, they suffer a considerable check, and make but little progress unless they receive attention in the way of being kept well watered. Finish off the pruning of all classes of fruit-trees, whether growing in the open borders or trained to walls. In nailing wall-trees use new shreds, and have them long enough to allow plenty of room for the roots to swell when growing. All the wall-trees will be benefited with a dressing of Gishurst compound, mixed at the rate of 4 oz. of the compound to the gallon of water.

PITS AND FRAMES.—The lights of the frames full of bedding plants should be drawn off during the middle of the day if the weather is open and dry, otherwise give an abundance of air by tilting the lights at the back. Make up a nice hotbed for propagating purposes, and raising seedlings. Bedding plants must now be propagated largely, as soon as the cuttings can be had, so as to give the plants plenty of time to get strong and well hardened off before the time for turning them out into the beds. Look well after green-fly and mildew, and adopt remedies for their prevention and cure.

FORCING.—Sow for succession Sion House French beans. Keep those in bearing well supplied with weak manure water, and the syringe freely at work, to prevent the appearance of red spider and thrip. Strawberries in bloom to have a free circulation amongst them, without being exposed to cold currents. Vines started last month should have a rise of about five degrees, and those sufficiently advanced should be disbudded directly the bunches can be discerned, and tied in when necessary. When allowed to grow too long they frequently snap off in tying, besides getting in contact with the glass, and thereby suffering considerable injury. The temperature of all the houses should have a rise of five degrees above that advised last month. Unless the vines are in flower, maintain a thoroughly moist atmosphere. Figs as they progress in growth must have plenty of moisture at the roots, and be kept well syringed. The temperature should range from 60° to 70° through the day, with a fall of ten degrees at night. Peach and nectarine trees in bloom must have plenty of air to insure the bloom setting. Those started earlier will now require disbudding. Begin with the fore-right shoots first, and proceed gradually. Keep the trees regularly syringed, watch closely for mildew after easterly winds, and sulphur directly it makes its appearance. See that the inside borders are in a proper state as regards moisture. Cherries and plums must be started very slowly, and have an abundance of air when in bloom; 45° to 50° will be plenty high enough to begin with.



INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

A SELECTION OF CHOICE VEGETABLES.

[We would again urge upon our readers the importance of ordering the seeds early, to avoid delays in sowing them.]

ASPARAGUS.—Grayson's Giant, Connover's Colossal.

BROAD BEANS.—Mazagan, Taylor's Broad and Green Windsor.

BEEF.—Cattell's Dwarf Purple-top, The Chelsea, Pine-apple Short-top.

BORECOLE.—Dwarf and Tall Green Scotch, Cottagers' Kale, Dalmeny Sprouts, Albert Sprouts.

BRUSSELS SPROUTS.—Strynger's Giant, Sutton's New Matchless, are the best types of this useful vegetable.

BROCCOLIS.—Walcheren, Grainger's, Sutton's Superb, Lake's Fine Late, Carter's Champion, Cattell's Eclipse.

CAULIFLOWER.—London White, Veitch's Autumn Giant, Walcheren.

CARROT.—Scarlet Short Horn, Altringham, and James's Intermediate.

CABBAGE.—For early crops, Hill's Incomparable, Atkins's Matchless, and London Colewort. For heavy crops, Enfield Market, Cattell's Reliance, and Wheeler's Imperial.

CAPSICUM.—Long Red, Yellow Gem, and Long Red Chili.

CELERY.—Turner's Incomparable White, and Williams's Matchless Dwarf Red.

CUCUMBER.—For winter and early spring, use Rollisson's Telegraph and Masters's Prolific; for general usefulness, Berkshire Champion, Cuthill's Black Spine, Blue Gown, Kirklees Hall Defiance; for ridges, Stockwood Ridge, and Henderson's A 1.

ENDIVE.—White and Green Curled, Fraser's Improved Batavian, and New Moss-curved.

KIDNEY BEANS.—For pot-culture, Sir Joseph Paxton, and Newington Wonder; for main crop, Newington Wonder, Negro, and Dark Dun. The best Runner is Carter's Champion.

LEEK.—Musselburgh, London Flag.

LETTUCE.—For autumn sowing, Hammersmith Cabbage and Brown Bath Cos; for summer use, Malta Cabbage, Tom Thumb Cabbage, All the Year Round Cabbage, Bath Cos, Sugar-loaf Cos, Paris White Cos, Holme Park Green Cos.

MELON.—For pot-culture, Sutton's Tom Thumb and Turner's Scarlet Gem. For frame and house—*Green Flesh*, Colston Basset Seedling, Trentham Hybrid, Burghley Park, Improved Victory of Bath; *Scarlet Flesh*, Little Heath, Malvern Hall, Ward's New Netted, Royal Ascot.

ONION.—For pickling, Early Nocera, Paris Silver-skin; main crop for storing, Reading, Deptford, James's Keeping; for exhibition, White Spanish, Blood Red, Trebons, Giant Madeira, Giant Rocca; and for autumn sowing, Red, White, and Globe Tripoli.

PARSLEY.—Dickson's Treble-curved and Veitch's Splendid-curved.

PARSNIPS.—Hollow Crown, Student.

PEAS.—First-early, Sutton's Ringleader, Taber's Perfection, Eastes' Kentish Invicta, Alpha and Advancer (rather tender in constitution, but invaluable); second crop, Laxton's Prolific, Paradise Marrow, and Prizetaker Marrow: main crop and long gathering, Fortyfold, Hundredfold, McLean's Wonderful, Veitch's Perfection, the Prince, Ne Plus Ultra, British Queen.

POTATOES.—Veitch's Improved Ashleaf, Champion, Myatt's Ashleaf, Bresee's Climax, Dalmahoy, Model, Paterson's Victoria, Sutton's Berkshire Kidney, Almond's

Yorkshire Hero, Walker's Improved Regent, Gryffe Castle, Headly's Nonpareil, Late Rose, Fluke.

RADISH.—For frames, Wood's Early Frame; for general use, Beck's Scarlet Short-top, Scarlet Olive-shaped, White Olive-shaped, Turnip (red and white).

RHUBARB.—Myatt's Victoria, Myatt's Linnaeus, Johnston's St. Martin's.

SPINACH.—For spring sowing, Round-seeded; for summer and autumn sowing, Prickly-seeded. Spinach Beet is very productive, and lasts the whole season. New Zealand Spinach is a fine vegetable for hot dry soils.

TOMATOES.—Earley's Defiance, Hathaway's Excelsior, Keye's Early Prolific.

TURNIP.—To sow in spring, Early White Strap-leaved, Short-top Six-weeks; to sow in summer, Veitch's Red Globe, Beck's Golden Stone and White Dutch; to sow in autumn, Jersey Navet, Green-top Six-weeks, Chirk Castle.

VEGETABLE MARROW.—Hibberd's Prolific and Prince Albert.

HORTICULTURAL AFFAIRS.



ESSRS. DOWNIE, LAIRD, AND LAING will hold an exhibition of Hyacinths, and spring-flowering plants generally, at the Crystal Palace, Sydenham, in March next. The exhibition will commence on the 21st prox., and continue for a fortnight.

PROFESSOR AGASSIZ, the well-known naturalist and philosopher, died recently in America at the age of 67.

THE INNER LIFE OF PLANTS formed the subject of a very interesting paper read before the December meeting of the Royal Society, by Professor J. B. Sanderson, M.D., F.R.S. The author of the paper gave a rather full account of his recent discovery respecting the electrical phenomena which accompany the irritation of certain leaves.

THE EXHIBITION OF FUNGI at South Kensington, in October next, is to be on a larger scale than in previous years.

THE ROYAL BOTANIC SOCIETY will hold five exhibitions in its Gardens in the Regent's Park, during the year, and the dates of these are as follows: spring exhibitions, March 25th and April 22nd; summer exhibitions, May 20th, June 10th and 24th. In addition to these a special evening fête will be held July 8th.

THE ROYAL HORTICULTURAL SOCIETY will hold nine exhibitions during the year in its Gardens at South Kensington. The dates of these are: spring exhibitions, March 18th, April 15th, and May 13th; summer exhibitions, June 4th and 5th, July 1st and 15th; autumn exhibitions, September 2nd and November 11th.

THE MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY will hold its great National Horticultural Exhibition in the gardens at Old Trafford, from May 22nd to 29th. Owing to the comprehensive character of the schedule, and the high value of the prizes, this exhibition will probably be the best held in the United Kingdom this year.

THE LIFE OF THE VEGETABLE is in some part elucidated by the experiments of M. M. A. Barthélemy, reported on in the *Comptes Rendus*, No. 78.

A MEETING OF THE FELLOWS OF THE ROYAL HORTICULTURAL SOCIETY was held in the Council Room at South Kensington on the 8th ult., to consider the question of establishing for the male Fellows the right of voting by proxy; and a resolution in the form of an instruction to the Council, to prepare a bye-law giving the right to vote by proxy was carried by a large majority. The Council alone have the power to propose new bye-laws; and as they decline to act upon the instruction conveyed in the resolution passed by the meeting, the matter remains in abeyance for the present.

THE ANNUAL MEETING of the Royal Horticultural Society will be held in the Council Room on Tuesday the 10th inst.; Chair to be taken at 3 p.m.

A HONEY FAIR is announced to be held at the Crystal Palace on the occasion of the Great Exhibition of Fruit and Flowers in September next. A schedule of prizes to be offered for Honey, etc., will be issued shortly; and it is hoped by the promoters to establish an annual honey fair, to afford bee-keepers greater facilities for the disposal of their honey than at present exist.

THE HEATHERSIDE NURSERIES, comprising several hundred acres at Bagshot, and lately the property of A. Mongredien, E.-q., have been purchased by a limited liability company. All the shares were disposed of in a very short time, and the company is now in full working order. The manager of the Nurseries is Mr. R. Thornton.

THE ROSE HARVEST OF ADRIANOPLE of 1873 was, according to the report of Vice-Consul Dupuis, remarkably good. The crop is said to yield about 500,000 miscalis, or about 75,600 ozs. of otto (or attar) of roses, and is valued at about £70,000.

THE GARDENERS' CHRONICLE, AND AGRICULTURAL GAZETTE, which have been published together for thirty years, were separated at the commencement of the present year. They are now brought out as distinct papers, under their respective titles; and we heartily wish them both success.

THE VINE DISEASE still occupies the attention of French authorities. The prize of 20,000 francs offered by the French Government to the discoverer of a practically efficient mode of destroying the *Phylloxera* will not be awarded until next December, for the purpose of allowing another season for experiment and observation.

THE POTATO CROPS are threatened by an enemy as bad, if not worse, than the disease. The enemy is the Colorado Potato Beetle, *Doryphora decempunctata*, which during the last few years has done an immense amount of mischief to the potato-crops in North America. It is a native of the Rocky Mountains, where it feeds upon a species of wild potato, *Solanum rostratum*. As soon as the cultivated potato was planted at the foot of the mountains by the settlers, the crops were attacked by the *Doryphora*; and since then it has spread over nearly the whole of North America, destroying the crops in every direction; and it is feared that in a short time it will make its appearance in this country. Efforts have been made to stay its progress in America, but without avail. During 1871 a great many of the beetles covered the river Detroit, in Michigan, and crossed the lake Erie on floating leaves, and other convenient rafts.

LORD CATHCART'S PRIZE OF £100 offered for the best Essay on the Potato Disease has not been awarded, although ninety-four essays were sent in.

LILIUM AURATUM has been imported very largely during the last few weeks; and at a great sale in Stevens' Rooms, Covent Garden, on the 8th ult., lots of twenty-five bulbs were sold for £1, and of forty £1 5s. to £1 8s.

A SCHOOL OF HORTICULTURE is, we understand, to be formed in France, and the magnificent kitchen-garden at Versailles is to be set apart for the instruction of the scholars in fruit and vegetable culture.

TO CORRESPONDENTS.

GREENHOUSE ROSES.—*W. W.*—You must not expect to have them in bloom by the middle of March. A little of Standen's manure, sprinkled on the top of the soil in the pot, will do them good; or sheep's droppings might be used with advantage. If neither of these plans is convenient, use very weak liquid manure constantly. It scarcely matters of what it is made, whether guano or steeped dung, so long as it is weak and clear. They must have abundant light, and regular ventilation and sun-heat alone will bring them into bloom by the middle of April, if taken care of.

PRUNING ROSES.—*Amateur Rosarian.*—You may begin to prune, especially as an early bloom is wanted; but it would be well not to touch the tea-roses just yet, because, if sharp frost should come, its fury will be spent on the present tops of the shoots, and the riper parts of the wood will be spared; whereas, if they are pruned now, they will immediately begin to push roots from the ripe wood, and all those new shoots will be endangered. Very much depends on aspect and climate. Roses may be pruned in January and February, and suffer nothing; but, as a rule, the late pruning system is the best in the long run, as our spring seasons are so treacherous.

TUBEROSES.—*Inquirer.*—To grow tuberoses to perfection is not a difficult task, and there is plenty of time now to begin, as we have frequently potted them as late

as April. The exact course to follow must be determined by the desire of the cultivator to have them in bloom at any particular date. If wanted as early as possible, they should be potted as soon as they can be obtained, and be at once placed on a steady bottom-heat of 60°, with very little water until they begin to grow, and after that plenty. Thenceforward, warm greenhouse culture, with plenty of light, water, and air, will suffice to bring them into bloom in June. If wanted as late as possible, pot them in the middle of April, put the pots on a top shelf in the sun, giving no water, or but little, just to keep the soil slightly moist until they begin to grow, and after that water cautiously until they are growing freely. If kept fully in the light in a greenhouse, they will be coming into bloom in August and September; and the nice point in management to prolong the bloom is to give a little heat when necessary, to prevent the buds going blind; but to give no more heat than will suffice to assist the expansion of the flowers. A light, rich loam is the best soil for them; they require rather liberal pot-room, and the largest and heaviest bulbs should be selected in the first instance.

KERRIA JAPONICA.—*F. G.*—There cannot be a doubt about the hardiness of this plant, for it may be seen in all parts of the country, clothing walls of eight to fifteen feet high, and blooming profusely. It is a favourite wall-plant about London, and appears to thrive in any kind of soil. It will be found in old lists of hardy shrubs under its older name of *Corchorus Japonicus*.

RENOVATING GRASS LAWNS.—*G. H.*—Grasses and clovers require good food; and, when lawns become scrubby and thin, we may reasonably suppose that the soil is in great part exhausted. The appearance of daisies in grass-turf is also a proof that the soil is worn out; and, to get rid of them, the first thing to be done is to restore the fertility of the soil. While the superficial observer is giving elaborate attention to the philosophy of a daisy-rake, the truly practical man will be dressing the daisied lawn with phospho-guano, or superphosphate of lime, or some other good fertilizer—knowing well that a little change of the conditions will alter the nature of the conflict, and enable the grasses to drive out the daisies, and take the place prepared for them. A surface dressing of superphosphate of lime will cause an abundant growth of clover where the plant has never been seen before; and even nitrate of soda, which is by no means the best manure for grasses, will impart to the new growth a delightful richness of colour, and rapidly thicken the turf. A moment's reflection will suffice to show the reasonableness of top-dressing lawns. The treatment of grass-turf consists almost entirely in cutting and carrying away. The exhaustion of the soil, therefore, is inevitable; and, when that has proceeded so far that the grasses perish, and daisies take their place, the time has come when some kind of fertilizer must be employed. On some strong soils this point is never reached, and manure is never needed; but, generally speaking, old lawns show signs of the poverty of the land, and the only remedy for that is manuring. The best possible manure for grass-turf is that taken from a well-rotted stable-heap, such as the remains of an old hotbed. This should be spread two or three inches thick in February every year; and, all the summer through, grass so treated will be green and felt-like, soft to the foot, and consist of the best turfing plants. Generally speaking, this particular fertilizer cannot be spared for the purpose, and artificial manures may be employed in its place. Any that are rich in potash and phosphates will serve the purpose, and even old plaster or scot may be used with signal benefit. Grass-plots in town-gardens are frequently in a bad condition through exhaustion of the soil, and an annual sprinkle of manure is all they want to restore them. People scratch the ground, and sow grass-seeds, and are never any better off; but a bag of guano every year would be effectual to secure for them the luxury of a permanently-green turf. The guano and superphosphate should be applied at the rate of 3½ lbs. to the square rod.

NAMES OF PLANTS.—*B. Knight.*—The specimens were very much shrivelled and dried up, but, as far as we can make out, No. 1 is *Diplacus glutinosa*; 2, a *Kennedy*; 3, *Polygala oppositifolia*; 4, *Mitraria coccinea*; 5, No flowers, and we could not, therefore, attempt to name it.

A Subscriber.—The bulbs should be taken up in the autumn as soon as the foliage dies down, and they should be replanted in March or April.

FRUIT-TREES ON SANDY SOIL.—*A Lady Subscriber.*—The only course to pursue is to dig up and destroy the trees and plant others. Apples, cherries, and plums only should be planted, for pears seldom do any good on sandy soils. The

following varieties are the most useful for insuring a supply extending over the longest possible period. *Apples*: Devonshire Quarrenden, Kerry Pippin, Keswick Codlin, Adams' Pearmain, Blenheim Orange, Fearn's Pippin, Margil, Bedfordshire Foundling, Hawthornden, Baddow Pippin, Cockle Pippin, Wyken Pippin, Alfriston, Dumelow's Seedling, Norfolk Beefing. *Cherries*: Belle d'Orleans, Frogmore Early Bigarreau, May Duke, Elton, and Morello. *Plums*: July Greengage, Denniston's Superb Greengage, Purple Gage, Jefferson's, Kirke's, Coe's Golden Drop, Early Rivers, and Victoria. The trees should all be on free stocks; that is to say, the apples should be on the crab stock, and the cherries on seedling stocks. Grafted on dwarfing stocks, they do not grow with sufficient vigour to produce good crops when planted in poor, sandy soil. Previous to planting, dress the soil with manure, and, if convenient, dress also with heavy loam or clay.

TRADE CATALOGUES.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN, W.C.—*Descriptive Catalogue of Choice Seeds for the Flower and Kitchen Garden.*

JAMES BETTERIDGE, COMMON HILL NURSERY, CHIPPING NORTON.—*Catalogue of New and Choice Potatoes, and Hardy Herbaceous Perennials.*

J. BLACKLEY, LEYTON, LONDON, E.—*Catalogue of Tree Carnations.*

J. CARTER AND CO., 237 & 238, HIGH HOLBORN, W.C.—*Carter's Gardener's Vade Mecum and Seed Catalogue.*

DICKSON, BROWN, AND TAIT, 43 & 45, CORPORATION STREET, MANCHESTER.—*Catalogue of Vegetable and Flower Seeds.*

DOWNIE, LAIRD, AND LAING, STANSTEAD PARK NURSERY, FOREST HILL, S.E., and 17, SOUTH FREDERICK STREET, EDINBURGH.—*Descriptive Catalogue of Garden, Flower, and Agricultural Seeds.*

J. HILL, SPOT ACRE, STONE, STAFFORDSHIRE.—*Catalogue of Forest Trees, Shrubs, Roses, Fruit Trees.*

DAVID GOLD MCKAY, SUDBURY, SUFFOLK.—*List of Vegetable and Flower Seeds.—List of Gladioli and other Flower Roots.*

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WILLIAM PAUL, WALTHAM CROSS, HERTS.—*Catalogue of Choice Vegetable, Flower, and Agricultural Seeds.*

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MELONS.

John and Queen Anne's Church.

FRAME CULTURE OF THE MELON.

(With Coloured Illustration of Little Heath and Queen Anne's Pocket Melons.)



THE melon is the noblest production of the kitchen garden, and well worthy of the high fame it has always enjoyed. The position it holds at exhibitions and in seedsmen's catalogues indicates its importance and value, for it rarely happens that there is a tame competition in the classes for melons, while the annual supply of new varieties that supersede all the old ones is great enough to show that honour and profit are regarded as the sure rewards of those who may succeed in effecting and establishing improvements. The melon agrees with most other garden plants in this, that its real improvement is a slow process, quite misrepresented by the so-called new varieties that are always current, and that appear to exist only to prove that between names and things there is often a great gulf fixed. Amongst these, however, occur from time to time distinct and useful kinds that mark a real advance in quality; and one of the most satisfactory improvements effected of late years is seen in the scarlet-fleshed class, the best of which are scarcely inferior in flavour to the best of the green-fleshed, which, until recently, enjoyed pre-eminence.

The best melons are produced by rough-and-ready methods, and yet the fruit is not in any way adapted for the poor man's garden, for there must be a plentiful and constant supply of fresh manure to carry on the cultivation, and the produce is an article of luxury adapted only to the tables of the affluent. In great gardens melons are grown in houses heated with hot-water pipes, but they may be grown quite as well in frames, and in truth there is no system that suits the plant so well as the old-fashioned hotbed, for its vapours and gases suit the plant better than the purer air of the nicely built melon-house, heated with hot water, and kept as dry and as clean as a drawing-room. We purpose to offer our readers a short code of directions for the culture of melons in frames, and those who need any aid towards the cultivation by means of hot water will find it an easy matter to adapt our rules to their own practice, the principles being in both precisely the same.

THE FIRST STAGE in the cultivation comprises the sowing of the seed and the nurture of the plants until they are strong enough to be planted out. The first requisite is a good hotbed, and it need not be a large one, as another will be required for fruiting the plants. We raise a lot of melon plants with tomatoes, capsicums, globe amaranths, and celosias, in a frame only three feet in length by two and a-half feet wide, and find one good horse load of stable-manure twice turned to suffice for the purpose.

A thin surfacing of rich mellow soil is spread over the manure to form the seed-bed, and the seeds are sown in rows across the bed when the heat is steady at 75° to 85°. In great gardens this sort of work is begun in January, and is carried on in substantial brick

pits with the aid of an abundant supply of fermenting material. But in a small garden, where the appliances are of a less costly nature, the first week in March is early enough, for the bed is then considerably aided by sun-heat, and very much trouble is saved in the nursing of the young plants. The seed may be sown in pots and pans, but the bed is far preferable as producing stronger plants and occasioning far less trouble. Sow the melon seeds in rows six inches asunder, and the seeds three inches apart in the rows. When they are fairly up, and show the leader fairly rising, pinch out the point to compel the formation of two or three side-shoots in place of one leader. With careful watering and ventilating, if the heat continues steady, they will advance nicely, and soon become thrifty plants, ready for transference to the bed in which they are to fruit. The plants should be in the fruiting-bed within four weeks at least from the date of the sowing of the seed. We have in favourable seasons planted out within three weeks, but it is not well to move them until they are somewhat stocky.

It must here be observed that melons are usually grown in pots until ready for the fruiting-bed, and there can be no objection to the practice where there are skilful hands to carry it out. But the risks are many in pot-culture, as compared with the plan we recommend, and the bed system occasions less trouble. It is not at all uncommon to find young melon-plants in pots quite beset with red spider, owing to a little irregularity or neglect in air-giving and watering, whereas, when grown in a bed from the first, it is altogether unusual for fly or spider to touch them, for they are robust in growth, rooting freely, and if the bed should get a little dry, they do not soon feel it. Another remark must be made as to pinching out the point of the leader. When raised in pots, it is well not to stop them at all until they have been planted out at least a week, and then if they are stopped they make a nice growth from the lower eyes, and soon spread over the hillocks. But when raised in a bed they are so strong from the first that the stopping may be done earlier, and the result will be a gain of time in the formation of fruiting wood.

THE FRUITING-BED should be got ready in time, and should be formed with a good body of manure, that has been two or three times turned, with good capacious frames to cover it. When melon growing begins in January, the fruiting-bed will require to be lined as the heat declines, to maintain a proper temperature; but if we begin in March, sun-heat will finish the crop, if it is well started with a big sound bed of stable manure, that has been in some degree fermented, so as to produce a sweet and steady heat. In a sunless season, however, the heat must be kept up by linings, for the melon requires a bottom-heat ranging from 70° to 90° , and an atmospheric temperature of 65° to 80° , with a rise of 10° during sunshine.

The usual way of ridging-out is to form a hollow in the bed in the centre of each light, and fill these to the surface with brickbats, or hollow tiles; then cover with a turf, grass side downwards, and make a smallish hill of soil for the plants. The next thing is to put out two plants to every light, give a little water, and keep rather

close and shaded until the plants make a start, and show by their free growth that they are well established. They are earthed-up as they advance, and thus the hills grow with the plants. It is no wonder that when the plants are raised in pots and treated subsequently as now described, they are frequently assailed with fly and spider, and give the cultivator incessant trouble to keep them clean and healthy. Our method is to make up good-sized hills in the first instance, using two barrows of soil, at least, to each, and shut up the frames for a few days; by this time the hills will be nicely warmed. Then we consider if the heat is too strong, and if it is we subdue it by ventilating, and very soon the bed is ready for the plants. We now lift them carefully with a trowel, and plant only one to each light, in the centre of the hillock, which is raised so as to bring the plant very close to the glass. If carefully handled, and aided with the syringe, and kept as close as possible, without allowing the heat to rise above 90° , they take hold of their new position at once, and make a splendid start, and thereafter give very little trouble; for fly and spider have no relish for plants so treated.

The question of soil is one of some importance. The melon will not thrive in a light soil, and it is not well to incorporate with the compost any considerable proportion of manure; the top spit of a pasture, where the staple is a stiff brown loam, will answer admirably; but it should be laid up some time previously, to get rid of tipula grubs and wire-worms, and to rot the fibre in some degree. Three parts of such soil, well chopped up with one part of well-rotted hot-bed manure, will form a good compost, and in planting it will be well to fill in round the root with a mixture of fine soil—say equal parts of turfy loam, leaf-mould, and rotten manure, to coax the roots into immediate action.

THE SUMMER CULTURE is simple enough, but the attentions requisite must be regularly given, or disappointment of some sort will be sure to occur. In the first place there should be no shading from first to last, except when the plants are first put out, and even then it will only be necessary if the weather happens to be very bright, in which case two or three rhubarb leaves may be laid on the glass, for a few hours every day, to mitigate the fervour of the sun's rays. As to watering, we must differ from the books again, in recommending a more generous treatment than is usually prescribed, for melons are thirsty, and will be cleaner and more robust if regularly syringed overhead, and kept nicely moist at the root by regular watering of the hillocks. They will not endure the degree of humidity that cucumbers enjoy; but they are often kept too dry, and become the prey of various insect plagues in consequence. As to ventilating, that must be to some extent regulated by the heat of the bed and the state of the weather; but as the plants cannot be kept in health without plenty of air, it is desirable to ventilate as freely as possible—consistent with maintaining a proper temperature. With this in view, the cultivator will take care to have heat enough to render air-giving both safe and desirable. In many cases the dry system is adopted because free watering has been found to promote canker and damping at the collar. But if the drainage of

the hills is secured in the first instance, by a foundation of rubble, and *soft tepid water* is always employed, and the bottom-heat is right, melons will enjoy more moisture than they usually obtain, and in return for it will give heavier crops and finer fruit.

The plants must be allowed to spread until they reach within six inches of the side of the frame, and then the point of every shoot must be pinched out. It may be remembered, however, that if they are never stopped at all, they will just as surely fruit, but judicious stopping causes a more plentiful production and more equable distribution of those secondary shoots on which the fruit is produced. It is customary to "set" the female flowers with farina from the males, but we have always found the crop to be as good in a bed where we never "set" a single flower, as in one that was most punctually and carefully attended to. We give the bees the credit of taking this task off our hands, for they are assiduous workers amongst melons and cucumbers.

In due time the fruit will appear, and the cultivator must have the courage to refuse nature's generous offer of many more fruits than the plants can ripen properly. As soon as a fair crop is set, persist in suppressing the flowers as they appear, and stop every fruit-bearing shoot at about four eyes beyond the fruit. And what is a fair crop? it may be asked. A large sort, such as Beechwood, may be allowed to carry half-a-dozen fruit, and a smaller sort, such as Scarlet Gem, may carry nine.

As the fruits swell, keep the plants going with a good heat and liberal watering, and if the leaves appear yellowish through having exhausted the hillock, water twice a week with guano water, made by adding half an ounce of guano to every gallon of soft water. If the roots run upon the surface much, cover them with a dressing of fresh soil at the rate of about a barrow-full to every hillock, taking great care not to bruise the stems or the leaves in the operation. As the fruits acquire their full size, discontinue syringing, and lessen the supply of water at the roots, and give air freely, but be careful the heat does not go down, for melons must be ripened in a good heat to have proper tenderness and flavour. Every fruit should from the first rest on a tile or slate, unless the plants are trained to a trellis. They must not be cut the instant they have acquired their proper colour, or they will be comparatively worthless; the signal for removing them is when they emit a powerful odour, and after being removed they should be kept a few days before they are cut for eating.

The two melons here figured are the hardiest of the family, and well adapted for frame culture. We grew fine crops of these last year by a very cheap and simple method. We had a lot of coarse waste hay not good enough to feed a donkey, and this we converted into fermenting material. It was spread and sprinkled to form a large bed, and the soil was put on in hillocks, and the frames were put in their places and shut up close. In the course of a few days there was a nice heat rising, and we sowed two or three seeds on every hill. The plants soon appeared, and we allowed only one of the Little Heath to each light, and two of the Queen Anne's Pocket. There they

remained for the season, they were never stopped or transplanted, or assisted with linings, and yet they ripened good crops, and, indeed, the crop of the little Queen Anne's melon was prodigious.

IN SELECTING SORTS it is necessary to bear in mind that, as a rule, green-fleshed melons are the best. The *Beechwood*, *Small Egyptian*, and *Bromham Hall* are fine old sorts, that will render good service if the seed be true. *Bellamore Hybrid*, *Prince of Wales*, and *Victory of Bath* are newish varieties of the green flesh section, that may be trusted for beautiful fruit of the finest flavour. The best scarlet-fleshed variety is *Scarlet Gem*, which requires more heat than *Little Heath* (here figured) which is in every way good, besides being hardier and more prolific. An extremely nice melon, with rich pink flesh, is *Princess Alice*, a handsome, netted fruit of a buff-yellow colour. *Queen Anne's Pocket* is valued for decorative purposes, but for eating is comparatively worthless, or at the best only fit to amuse children.

S. H.

SEASONABLE WORK IN THE KITCHEN-GARDEN.

BY GEORGE GRAY,

Head Gardener, Ewell Castle, Surrey.



THE month of March is a busy time in the kitchen-garden, because so many of the main crops, both for summer and winter use, have to be sown, or planted, and those who take the necessary steps to secure thoroughly good crops have plenty of work to occupy their head and their hands. It is, in the case of the majority of the crops, most essential that they should be sown or planted at the right moment, to insure the best possible results. Therefore every effort should be made to have the seed in readiness for sowing immediately the ground is in proper condition for its reception. The time of sowing and planting must to a certain extent be regulated by the situation and the character of the soil. As, for example, some crops may be sown on naturally dry, warm soils, or in southern counties, in the early part of the month, which if the soil is naturally cold and wet, must not be sown until quite the end of the month. As a rule, all the crops that will be alluded to must be sown as soon as the soil is in a nice working condition. The most important of the crops to be sown now are: cabbage, brussels sprouts, and winter greens generally; onions, carrots, and other root crops; peas and beans; and successional supplies of such things as lettuce and spinach.

The cabbage and winter greens should be sown in beds and transplanted. As it is not good practice to sow the seed so thick that the plants smother each other as soon as they commence to produce rough leaves, a bed about four feet in width and eight or ten feet in length should be provided for each subject. The best course is to select a border similar to that recommended for the length of

March.

the beds, and then mark out the beds with pegs, and tread an alley between them. If there is no border available, sow in drills two feet apart and about twenty feet in length, each drill being devoted to a separate crop. The seed may be sown rather thickly in the drills, as the plants have plenty of space for their development on each side. By acting upon this advice a good stock of sturdy plants will be obtained, without the labour incidental to transplanting them, previous to their being planted in their permanent quarters, and they will be much stronger than those crowded together in the seed-bed until planting time, as is very generally the case.

The early and main crops of potatoes must be planted early to insure good crops. The middle of the month is most suitable for planting on dry soils, and the end on soils of a heavy character. The work must be regulated by the weather, and the state of the soil, for there will be no gain in planting when the soil is in a wet, pasty condition, for it will be trodden so firm as to require considerable labour to break it up between the rows after the potatoes have pushed through the soil. The earliest varieties must be planted first, and have the warmest position the garden affords. These may be planted in rows about eighteen inches apart; but the late sorts for main crops should be planted in rows from three to four feet apart. This will afford the branches plenty of room to spread, and there will be no loss of ground, for the space between the rows may be planted with winter greens, and two crops really obtained from the same quarter. The seed potatoes should be of a medium size, quite firm, and furnished with short purple sprouts, for much better crops will be obtained from them than from those which have been laying in a heap all the winter, and have produced long white shoots, that have had to be removed. Planting in drills four inches in depth, made with the spade, is preferable to planting with the dibble, as is still very generally practised.

The onions, carrots, and parsnips should be sown in drills in beds four feet in width, and as it is most important that the soil be in good condition when the seed is sown, the preparation of the beds should commence at once. Select a quarter which was dug over in the autumn, and if the surface is pricked over with a fork, it will be in capital condition for sowing in about a fortnight afterwards. The drills for onions and carrots should be twelve inches, and for parsnips fifteen inches apart. Let the soil be in a nice friable condition when the seed is sown, and after the drills are filled in tread the bed to make the surface firm, and then rake it over lightly, and in doing this remove all stones and large lumps of soil.

The rows of peas and broad beans sown now should be placed from six to eight feet apart, to admit of dwarf-growing crops being planted between them. The peas, if sown in trenches prepared in much the same way as for celery, but not quite so deep, will produce better crops than they will do if sown on the level in the usual manner.

POTATOES FOR PRESENT PLANTING.



LAST year a large and comprehensive trial of potatoes was carried out in the gardens of the Royal Horticultural Society at Chiswick, with a view to test the productiveness, quality, and distinctive character of the varieties in cultivation. The trial, which was under the direction of the Fruit and Vegetable Committee of the Society, comprised 271 reputed varieties, the samples being obtained from the principal growers in the country. From the report of the trial, which has been prepared by Mr. Barron, the gardener-in-chief at Chiswick, the number of varieties was reduced by 156, leaving 115 to be described. Of these number a considerable proportion are either worthless or second-rate, and, therefore, not worth growing, excepting by potato-fanciers. It is only by systematic trials of this kind that correct conclusions respecting the value of the several kinds can be arrived at, and, for the assistance of our readers, we have prepared a list of the sorts which in the Chiswick trial proved to be the very finest in cultivation. It necessarily includes more kinds than will be required in any one garden, but the trials which have been carried on in the Experimental Garden at Stoke Newington during the past ten years have proved most conclusively that one of the best ways of making sure of a good supply is to grow a number of sorts, for one year some sorts will escape the disease, more or less, whilst others will suffer severely, and the next year those sorts which escaped the year previous will, perhaps, suffer the most, and *vice versa*. Much depends upon the stage of growth when the crop is attacked by the disease, and as the various sorts vary considerably in this respect, the safest plan is to grow several. A change of seed is also of great importance, for much finer crops will, in the ordinary way, be produced from seed procured from a distance than from home-grown samples. It is also essential that medium-sized tubers should be planted, and if they are firm, and furnished with short purple sprouts, it will be an advantage. We shall follow the classification adopted in Mr. Barron's report to avoid repetition, and render identification of the several varieties more easy.

WHITE KIDNEY-SHAPED.

Ashleaf Kidney.—This is still the best for frame culture and the earliest supplies from warm borders.

Kentish Ashleaf Kidney.—The best for planting for early crops in the garden. The tubers are handsome, of good quality, and it is an excellent cropper. It is known by no less than eighteen different names.

Myatt's Ashleaf Kidney.—Very similar to the preceding, but rather later. It is of excellent quality and a heavy cropper. This is also known by a number of names.

Fluke.—This is well known as one of the best late varieties on March.

soils which suit it. On cold heavy soils it is liable to be cut off with the disease, but on deep loamy soils resting upon a dry subsoil, it is the finest potato we have for late use.

Model.—A handsome heavy-cropping variety for late use. The flesh is rather close in texture, but superior to many in cultivation.

Oxfordshire Kidney.—A handsome late productive variety, of good quality.

Bresee's Climax.—An American variety of great merit. The tubers are large and handsome, the flesh white, and of excellent quality; productive, and one of the best second earlies.

Excelsior Kidney.—A much-improved form of Dawes' Matchless, and one of the finest second earlies. The tubers are large and handsome, the flesh white and of extra fine quality. It is a heavy cropper, and was awarded a first-class certificate.

King of the Flukes.—A very handsome variety, but second-rate in quality, and a moderate cropper.

Sextus.—A handsome variety of the Fluke section, but a moderate cropper only.

Lapstone.—A most valuable variety. The tubers of medium size, variable in form, and handsome. It is excellent in quality, and best adapted for use from October to May. The best type of Lapstone is *Headly's Nonpareil*.

Bresee's Peerless.—A heavy-cropping handsome variety, of good quality, and valuable for use in mid-season.

Paterson's Victoria.—A robust productive variety of good quality; one of the best for late use.

WHITE ROUND.

Regent.—A well-known productive variety of excellent quality for winter use.

Dalmahoy.—Similar in character to the preceding, but the tubers are more even in outline, one of the very best round varieties for late autumn use.

Early Union.—A useful early variety, producing a good crop of medium-sized clean-looking tubers.

RED KIDNEY-SHAPED.

American Late Rose.—A most valuable second early variety, producing a heavy crop of large handsome tubers of excellent quality; much superior to the Early Rose.

Extra Early Vermont.—A valuable new American variety, which is reported to have produced enormous crops in America, but in the Chiswick report it is described as "an average cropper." The largest crop which is said to have been raised in America from 1 lb. of seed is 603 lbs., or about eleven bushels. It was considered one of the best new potatoes at Chiswick, and a first-class certificate was conferred upon it.

Bountiful.—A handsome variety. The tubers of medium size, and even in outline; flesh white, and of good quality.

RED ROUND.

Red Emperor.—A large handsome variety, of great value for

exhibition; a good cropper and of excellent quality; rather subject to disease.

Red Regent. — A heavy-cropping late variety, suitable for field culture.

Wood's Scarlet Prolific. — A handsome late potato, productive, and of good quality.

Vermont Beauty. — A heavy-cropping second early variety, handsome in appearance, and of good quality.

King of the Earlies. — A useful early variety, which, when first distributed in America, was sold at the enormous price of 50 dollars a root. The tubers are of medium size and good quality.

SKIN STREAKED OR FLAKED.

Hundredfold Fluke. — Very distinct and good; the tubers large, long, and handsome; the skin pale, with large patches of purple. It is a heavy cropper, and of good quality.

Rintoul's Striped Don. — Like the preceding, very distinct. The tubers are large, roundish; skin pale, straw streaked and flaked with purple. It is a heavy cropper, handsome, and of good quality.

The foregoing list includes twenty-six varieties, all of considerable excellence, but for the assistance of those who will not require more than ten sorts, we have selected the undermentioned as being most suitable for garden culture on all kinds of soils, and the best for maintaining a supply throughout the year.

Earliest, *Kentish Ashleaf* and *King of the Earlies*. Second early, *Excelsior Kidney*, *Bresee's Climax*, *Dalmahoy*, *Late Rose*. Late, *Oxfordshire Kidney*, *Paterson's Victoria*, *Regent*, *Lapstone* (type represented by *Headly's Nonpareil*). The *Fluke* should be grown for the latest supplies, where it does well. *Extra Early Vermont* and *Vermont Beauty* are yet too expensive to be grown in quantity.

HOW TO SAVE THE FRUIT CROP.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



SO frequently have sharp frosts during the time the fruit-trees are in bloom, that protection in some form or other is essential for the preservation of the flowers, and a few remarks upon the subject will probably be useful. The protection of fruit-trees from spring frosts is a matter requiring a considerable amount of practical knowledge to carry it out efficiently, for it is a very easy matter to injure the trees and do a considerable amount of mischief to the crop by the improper use of protecting material. Too much protection is in many cases as bad, if not worse, than none at all, although a very general impression prevails that provided the trees have a good covering of canvas or similar material, the crop will be safe; but it is not so, for the peach, and other trees usually trained to the open walls, are

March.

perfectly hardy, and the protection of the flowers and the young fruit is all that is needful for the cultivator to provide. In taking into consideration the value of the several kinds of material available for protective purposes, it will be necessary not to lose sight of the fact that it is of [nearly as much importance to keep the flowers dry as it is to protect them from frost. When dry, several degrees of frost do them no harm, and a certain degree of dryness is essential for a proper distribution of the pollen. It is also desirable that a circulation of air should be continuously going on about the flowers, and this cannot well be the case when the trees are enveloped in a covering of thick material without intermission. Thick coverings are very well when they are fixed in a manner that will admit of their being drawn up and down as may be desired; but as they are, comparatively speaking, expensive, and take up more time every day than can well be spared, it is not likely they will ever be brought into general requisition, especially in the garden of the amateur. It will therefore not be necessary to enter into details in reference to this form of protection.

Wall-copings are most useful, for they materially check radiation and assist in keeping the flowers dry. Those made of glass are preferable, as they can be left over the trees several weeks longer than those made of wood; but copings made of thin boards, and about fifteen inches in width, answer very well, and can be recommended. These copings should slope slightly, and the protecting material be fixed to the edge. For amateurs, old fish-nets, which can be purchased at the rate of about a penny per yard, answer admirably, for they admit of a free circulation of air going on and at the same time afford most efficient protection from the frost. It is needful to hang two or three thicknesses of netting over the trees, and to prevent it swaying to and fro, poles of wood should be fixed at intervals of ten or twelve feet apart, and the netting hung over and be fastened to them at the bottom. The poles may be let into the ground to keep them steady, and lean against the coping. In case no coping is employed, the netting must be fastened to the top of the wall and be kept away from the trees with poles as here described, or with stout pieces of wood about fifteen inches in length, and having forks at the end to hold the netting. There is nothing new in the use of netting, although many amateurs appear to know but little about its value for protecting purposes. The netting should be put over the trees before the buds are expanded, and be removed as soon as the trees are furnished with sufficient foliage to protect the fruit from morning frost.

Those who are not disposed to incur the expense of the netting, may protect the trees with branches of the spruce-fir if available. The branches should be cut up into moderate-sized portions, and fastened to the wall with ordinary cast-iron wall nails. They must be spread thinly over the tree, or they will, from the causes already explained, do more harm than good. It is also essential to remove them before the trees have made much growth, to prevent the shoots being drawn out in a weakly manner.

The bloom of bush and pyramidal apple, cherry, and pear-trees

of a convenient size, can be protected from spring frosts by hanging branches of fir or evergreens from the ends of the principal branches, and also by hanging nets over the trees.

In all cases the amateur may be well assured that if the trees are protected in accordance with the suggestions made in the foregoing remarks, the results will be most satisfactory, and more than compensate for all the labour and expense necessary for affording the trees protection. Considering the amount of labour required to keep the trees in proper order, it is certainly worth while to protect the bloom and reduce the risk of a total destruction of the crop.

PARLOUR TABLE FERNS.

BY MRS. W. H. HANBURY.



UNLIKE many of the experienced writers who contribute to the FLORAL WORLD, I cannot tell your readers how to build and furnish large fern-houses; but I can, perhaps, say something about fern-growing that will be welcome to many of your lady readers. I know that many ladies, like myself, are very fond of having ferns in the parlour, and I know, too, that there is more difficulty in having them in perfection than those who have not had any experience in the matter would for a moment suppose. When I first began to grow ferns in the living-rooms, I had more failures than I would like to tell of here; but those failures have not been altogether lost upon me; and, moreover, I shall be able to tell my readers what to avoid as well as what to do.

We have two large square cases, which are now nicely filled with ferns, and a number of pans covered with glass shades. It is of the latter that I should like to speak, because they are within everyone's reach, whilst the larger cases are expensive; and no one should commence without Mr. Hibberd's "Fern Garden," to advise them upon the way in which the cases should be fitted up and managed. It has been of the utmost value, and if I had had a copy when I first began, a very considerable amount of disappointment and vexation would have been avoided. The cases to which I refer are so attractive, when nicely furnished, that they form admirable ornaments in any of the rooms where the space can be found for them.

The pans which I use vary from nine to fifteen inches in diameter, and are made of terra cotta, and have a rustic appearance. They have a better appearance than the red pans, which cannot be tolerated indoors, even when decorated with fanciful rims, and stand upon feet, and they are cheaper than anything else that would be suitable for the same purpose.

In commencing the culture of ferns in these cases, for the parlour-table, it is necessary to select kinds which do not grow too large. Many ladies meet with large-growing ferns in a small state, which have a very pretty appearance, and without ascertaining the

size they attain, they bring them home and plant in the case. They are no sooner planted than the fronds spread out, touch the sides of the case, and instead of growing in a natural manner, run along the side of the glass, or are bent over at the top, and in both instances have anything but an elegant appearance. To avoid this, it is essential that the ferns, when fairly developed, will just fill the glass, and which, moreover, can be kept to the desired size by the removal of a few of the outside fronds. One of the best is the maidenhair fern, which is known in the books as *Adiantum cuneatum*. If you only grow one fern, this should be selected in preference to all others, for it is easy to manage, and the favourite of everyone. *Adiantum setulosum* is another useful fern of a similar character to the preceding, and very beautiful. The sea spleenwort, *Asplenium maritimum*, and *Scolopendrium vulgare ramo-marginatum*, are quite distinct from the preceding, and remarkably beautiful. The green spleenwort, *Asplenium viride*, and *Doodia caudata*, are two pretty little ferns, admirably adapted for planting under small shades. These six will be quite sufficient for a beginner, as only one plant should be put under each, excepting when the small growers are put under large glasses, and then three or four plants of the same sort should be put together. I have acted upon the advice given in the "Fern Garden," and have covered the surface with a dwarf-growing lycopod, or selaginella, and the effect is very beautiful, as the green ground-work shows off the elegant fronds of the ferns much better than the brown soil.

In preparing the pans, I put first of all a layer of charcoal, in lumps, and cover it with moss. The gardener, meanwhile, prepares a mixture of peat and sand, by breaking the peat up into rather small lumps, and then mixing the sand with it. To this is added the dust and small nodules of charcoal, left after the larger lumps have been put in the bottom of the pans. The latter are then filled with soil, and the ferns are planted in the centre, and after the soil has been pressed moderately firm, the lycopod is dibbled over the surface; usually little tufts are put at a distance of about three inches apart. They soon take possession of the soil and spread over the surface, and form a carpet of the most exquisite greenery. The lycopod I have found to succeed best is the one found in the catalogues as *Selaginella denticulata*. A good potful of this, obtained from a nursery, would furnish a supply sufficient for several pans.

The management of the cases is kept entirely in my own hands, and as I take a great interest in them, they are examined frequently. The soil is maintained in a nice moist state, at all seasons of the year; but much moister during the warm summer weather than in the winter. It is impossible to say how often water should be applied, for some kinds require more than others, and plants of the same sort vary in their requirements. The only advice that can be given is to recommend regular examination, and to water when the soil is becoming dry. Some ladies consider it necessary to apply water frequently, and in small quantities, but the practice is most hurtful to the ferns, for the soil soon becomes saturated on the surface, and remains dry underneath. The ferns may be sprinkled

overhead occasionally during the summer, as it keeps the fronds clean and gives them a delightfully fresh appearance.

The ferns do not require much air, and if the shades are lifted off about twice a week and wiped with a clean dry cloth, and put on again, they will have all the air they will require. It is a great mistake to take the shades off for an hour or so of a sunny morning, with the idea that the exposure to the air and sunshine will be beneficial to them. It is a very common practice for ladies to do this, and then they wonder why the ferns turn brown and have a sickly appearance. This exposure is most hurtful to them, and if the glasses are removed for a short time it should be on a dull, still morning.

The present moment is most favourable for fitting up fern-cases, as the plants will soon commence to grow freely, and will quickly become established in their new quarters, and present an attractive appearance throughout the summer season. If at any time the plants become sickly, the best course will be to take them out of the pans and replant in fresh soil.

THE AUSTRALIAN BLUE GUM TREE.



THE Blue Gum Tree, of which we have of late heard so much in reference to its reputed virtue of purifying the atmosphere of miasmatic districts, and preventing attacks of fever, is by no means so new to English gardeners as some of the writers appear to suppose. According to "Paxton's Botanical Dictionary," it was introduced to this country in 1810, upwards of sixty years ago, but owing to its possessing no special value as a decorative plant, but little was seen or heard of it until Mr. Gibson planted it rather extensively in the Subtropical Garden in Battersea Park a few years since. Since then it has been grown in the other parks in the neighbourhood of the metropolis, and also in many of the principal private establishments in the country where subtropical plants have a place in the flower garden, as it consorts admirably with the cannas, castor oils, solanums, and other free-growing subjects. It has a branching pyramidal habit, as represented in the illustration which appeared in the FLORAL WORLD for August, 1868, and the leaves and bark are of a greyish-green. Like other members of the same genus it is remarkably free in growth, and under favourable conditions will, in this country, attain, in one season, a height of ten feet. In its native habitats in Australia and Tasmania, the trees attain an average height of two hundred feet, and have a stately aspect. There are examples in this country which have been out of doors three winters, and have attained a height of nearly twenty feet. In kind climates it is likely to live out of doors for several years; but winters like those of 1860-1 and 1866-7 would, there can be but little doubt, cut the plants down to the ground. The leaves emit a pleasant camphorous

odour, when drawn through the hand, and its power of purifying the atmosphere is said to consist in its draining the ground thoroughly by the action of the roots, and in giving off this camphorous odour freely. It would take too much space to speak of all the virtues attributed to it, and I will proceed to show how it may be grown by those who are desirous of having a few plants.

The most simple and the cheapest way of obtaining a stock will be to procure a packet of seed, costing a shilling, and sow in pots filled with a light sandy mixture. The pots can be placed in a frame or greenhouse, and in a comparatively short space of time the seed will germinate, and as soon as the plants are a few inches in height they can be put separately in pots of a small size. In a few days they will be well established in the pots, and may then be placed amongst the ordinary occupants of the greenhouse, or be removed to the frames and put with the bedders.

The Eucalyptus may be grown in pots for the windows or the conservatory; or it can be planted out in the flower beds or shrubbery borders, according to individual wish. If the plants are to be grown in pots, they will require shifting, when well established, into six or eight-inch pots, according as they may be required for the window, or the conservatory. Use good turfy loam, leaf-mould, and a small proportion of sand. Those intended to be planted-out will require no shift, as they can be put out towards the end of May. In the autumn they can be potted-up for the conservatory or left in the border to take their chance. G. G.

NEW AMERICAN POTATOES.



PREVIOUS to the planting season of 1873, Messrs. B. K. Bliss and Sons, the well-known seedsmen, of New York, offered prizes of 100, 75, and 50 dollars respectively for the produce of 1 lb. of seed of *Compton's Surprise* and *Extra Early Vermont*, two new potatoes of which they hold the stock. The official report of the committee has been recently published in the *New York Tribune*, and is a most interesting document. The committee, which consisted of Professor George Thurber, president of the Torrey Botanical Club, Dr. F. M. Hexamer, and Mr. P. T. Quinn, appeared to have had a rather difficult task; and it is satisfactory to find that it was discharged with so much ability. The committee report that, owing to irregularity in making up the returns, or in not complying with the regulations formed for the guidance of the competitors, they were not able to notice several very heavy and remarkably fine crops. After rejecting the returns that were irregular, or not properly authenticated, they made the awards as follows:—

For the largest quantity of Extra Early Vermont from 1 lb. of Seed.—First prize to J. I. Salter, St. Cloud, Minn., 607 lbs., 100 dollars; second prize to H. C. Pearson, Pitcairn, N.Y., 437 lbs.,

75 dollars; third prize to J. L. Perkins, Little Sioux, Iowa, 393 lbs., 50 dollars; fourth prize to Thos. J. McLeod, Black Brook, N. Y., 380 lbs., 25 dollars.

For the largest quantity of Compton's Surprise from 1 lb. of Seed.—First prize to Abednego Robinson, South Newmarket, N. H., 511 lbs., 100 dollars; second prize to H. C. Pearson, Pitcairn, N. Y., 450 lbs., 75 dollars; third prize to J. I. Salter, St. Cloud, Minn., 394 lbs., 50 dollars; fourth prize to Frank A. Smith, Stone Church, Penn., 386 lbs., 25 dollars.

In addition to the foregoing, eleven other growers of Compton's Surprise are reported as having produced crops exceeding 300 lbs., and nine growers of Extra Early Vermont are mentioned as having produced crops exceeding 250 lbs. Mr. Salter, the winner of the first prize offered for the Extra Early Vermont, considers Compton's Surprise to be the most productive potato of the two, and his having obtained the largest crop of the Extra Early Vermont, is accounted for by the fact that he obtained a larger number of eyes of that variety from the 1 lb. of seed, and also that the crop was not so much injured by the Colorado beetle, as, owing to its earliness, it had completed its growth before the beetle attacked its foliage, and therefore did not receive so much injury. Moreover, the tops of Compton's Surprise were cut down by a frost on September 7, whilst the other variety had been out of harm's way since the middle of the previous month. Compton's Surprise is reported to be the most productive potato yet cultivated in America, and yields of 12 lbs. to 20 lbs. to the hill are, according to the committee, reported by the hundred, and in one instance 28½ lbs. were dug from one hill; it is also said to be mealy, and of the finest possible flavour. The Extra Early Vermont is said to produce large handsome tubers, and one competitor states that he lifted as many as one hundred tubers exceeding 1 lb. each, and Mr. Salter reports that he raised one tuber weighing 3 lbs. 12 oz. It is also represented to be earlier and more productive than the Early Rose, and to be of the finest flavour. As an indication of the productiveness of these varieties, the committee state that: "Several reports contain accurate statistics of the yield of different varieties, the result of careful experiments. Taking the yield of Compton's Surprise as 100, the comparative yields average as follows: Compton's Surprise, 100; Early Vermont, 78; Harrison, 75; Peerless, 72; Late Rose, 70; Early Rose, 62; Campbell's Late Rose, 56; King of the Earlies, 40; Early Goodrich, 35."

The time of planting was, in nearly all cases, during the month of May. In no case were larger sets than of one eye used, and in a majority of instances these were again divided into smaller pieces, so as to give from 50 to 100 sets from one pound of seed. Nearly all the growers adopted the hilling system, and in only two cases were large crops obtained by level culture. There appeared to be no difference in the yield between hills with whole eyes and sections of eyes. The hills were invariably placed a considerable distance apart, rarely less than three feet each way, and oftener further. As a rule, but one set was planted in a hill, and covered about four inches deep.

March.

The largest product, that of Mr. Salter, was grown "on a very rich sandy loam, rich in decayed vegetable matter to the depth of between two and three feet, and lying upon a compact formation known as hardpan, which has never been under-drained." Mr. A. Robinson's soil likewise was "a sandy loam, clay subsoil, where he broke up and raised potatoes last year." Most crops, however, were raised on deep alluvial lands, underlaid with gravel; others on light loam, with clay or gravelly subsoil, and, in a few cases, on heavy clay, highly manured. In but very few instances was the land artificially underdrained, which seems to be a noteworthy fact.

Of fertilizers and mixtures an almost endless variety was used: but the one substance almost invariably applied was wood-ashes. In a few cases as much as one pint of ashes was applied to each hill as top-dressing; and, in one instance, the sets were actually planted on and covered with ashes. Plaster, lime, and salt were also extensively employed, and with great advantage. Strong nitrogenous manures have frequently been considered as detrimental to the potato, but here we find that many successful growers use large quantities of blood, fish, Peruvian guano, and poultry-yard manure, also barn-yard manure, at the rate of fifty loads per acre, without producing diseased potatoes.

ANNUAL FLOWERS FOR SUMMER BEDDING.

BY THOMAS TRUSSLER, EDMONTON, N.



ANNUAL flowers, when judiciously selected and properly cultivated, are of unquestionable value for the decoration of the flower-garden, although they are not held in high esteem by many to whom they should be of especial value. They are frequently pronounced weedy and short-lived, which in some instances is the case, owing to the plants being improperly managed, and in others, to growing kinds which justify their condemnation on the ground of weediness, for some of the annuals are of less value from a decorative point of view than some of the more showy of our wildings. But there are numbers capable of producing a grand display of colour throughout the season, and which only require ordinary good management to have them in perfection, and there are also a number of the ordinary bedders which can be raised from seed in the spring. It is of these two classes that I now propose speaking, and in the course of my remarks, I hope to show how amateurs may obtain a stock of plants of the utmost value for supplementing the stock of geraniums and other things which are of necessity propagated from cuttings.

First of all, we must consider which are the most suitable for making a good display, and in making a selection it will be necessary to omit many beautiful things because of their fugacious character. In *Ageratum Imperial Dwarf*, we have a most excellent pale blue bedder, and this, in my opinion, is the best of the genus for bedding.

FRAME CULTURE OF THE MELON.

(With Coloured Illustration of *Little Heath* and *Queen Anne's Pocket Melons*.)



THE melon is the noblest production of the kitchen garden, and well worthy of the high fame it has always enjoyed. The position it holds at exhibitions and in seedsmen's catalogues indicates its importance and value, for it rarely happens that there is a tame competition in the classes for melons, while the annual supply of new varieties that supersede all the old ones is great enough to show that honour and profit are regarded as the sure rewards of those who may succeed in effecting and establishing improvements. The melon agrees with most other garden plants in this, that its real improvement is a slow process, quite misrepresented by the so-called new varieties that are always current, and that appear to exist only to prove that between names and things there is often a great gulf fixed. Amongst these, however, occur from time to time distinct and useful kinds that mark a real advance in quality; and one of the most satisfactory improvements effected of late years is seen in the scarlet-fleshed class, the best of which are scarcely inferior in flavour to the best of the green-fleshed, which, until recently, enjoyed pre-eminence.

The best melons are produced by rough-and-ready methods, and yet the fruit is not in any way adapted for the poor man's garden, for there must be a plentiful and constant supply of fresh manure to carry on the cultivation, and the produce is an article of luxury adapted only to the tables of the affluent. In great gardens melons are grown in houses heated with hot-water pipes, but they may be grown quite as well in frames, and in truth there is no system that suits the plant so well as the old-fashioned hotbed, for its vapours and gases suit the plant better than the purer air of the nicely built melon-house, heated with hot water, and kept as dry and as clean as a drawing-room. We purpose to offer our readers a short code of directions for the culture of melons in frames, and those who need any aid towards the cultivation by means of hot water will find it an easy matter to adapt our rules to their own practice, the principles being in both precisely the same.

THE FIRST STAGE in the cultivation comprises the sowing of the seed and the nurture of the plants until they are strong enough to be planted out. The first requisite is a good hotbed, and it need not be a large one, as another will be required for fruiting the plants. We raise a lot of melon plants with tomatoes, capsicums, globe amaranths, and celosias, in a frame only three feet in length by two and a-half feet wide, and find one good horse load of stable-manure twice turned to suffice for the purpose.

A thin surfacing of rich mellow soil is spread over the manure to form the seed-bed, and the seeds are sown in rows across the bed when the heat is steady at 75° to 85°. In great gardens this sort of work is begun in January, and is carried on in substantial brick

pits with the aid of an abundant supply of fermenting material. But in a small garden, where the appliances are of a less costly nature, the first week in March is early enough, for the bed is then considerably aided by sun-heat, and very much trouble is saved in the nursing of the young plants. The seed may be sown in pots and pans, but the bed is far preferable as producing stronger plants and occasioning far less trouble. Sow the melon seeds in rows six inches asunder, and the seeds three inches apart in the rows. When they are fairly up, and show the leader fairly rising, pinch out the point to compel the formation of two or three side-shoots in place of one leader. With careful watering and ventilating, if the heat continues steady, they will advance nicely, and soon become thrifty plants, ready for transference to the bed in which they are to fruit. The plants should be in the fruiting-bed within four weeks at least from the date of the sowing of the seed. We have in favourable seasons planted out within three weeks, but it is not well to move them until they are somewhat stocky.

It must here be observed that melons are usually grown in pots until ready for the fruiting-bed, and there can be no objection to the practice where there are skilful hands to carry it out. But the risks are many in pot-culture, as compared with the plan we recommend, and the bed system occasions less trouble. It is not at all uncommon to find young melon-plants in pots quite beset with red spider, owing to a little irregularity or neglect in air-giving and watering, whereas, when grown in a bed from the first, it is altogether unusual for fly or spider to touch them, for they are robust in growth, rooting freely, and if the bed should get a little dry, they do not soon feel it. Another remark must be made as to pinching out the point of the leader. When raised in pots, it is well not to stop them at all until they have been planted out at least a week, and then if they are stopped they make a nice growth from the lower eyes, and soon spread over the hillocks. But when raised in a bed they are so strong from the first that the stopping may be done earlier, and the result will be a gain of time in the formation of fruiting wood.

THE FRUITING-BED should be got ready in time, and should be formed with a good body of manure, that has been two or three times turned, with good capacious frames to cover it. When melon growing begins in January, the fruiting-bed will require to be lined as the heat declines, to maintain a proper temperature; but if we begin in March, sun-heat will finish the crop, if it is well started with a big sound bed of stable manure, that has been in some degree fermented, so as to produce a sweet and steady heat. In a sunless season, however, the heat must be kept up by linings, for the melon requires a bottom-heat ranging from 70° to 90° , and an atmospheric temperature of 65° to 80° , with a rise of 10° during sunshine.

The usual way of ridging-out is to form a hollow in the bed in the centre of each light, and fill these to the surface with brickbats, or hollow tiles; then cover with a turf, grass side downwards, and make a smallish hill of soil for the plants. The next thing is to put out two plants to every light, give a little water, and keep rather

close and shaded until the plants make a start, and show by their free growth that they are well established. They are earthed-up as they advance, and thus the hills grow with the plants. It is no wonder that when the plants are raised in pots and treated subsequently as now described, they are frequently assailed with fly and spider, and give the cultivator incessant trouble to keep them clean and healthy. Our method is to make up good-sized hills in the first instance, using two barrows of soil, at least, to each, and shut up the frames for a few days; by this time the hills will be nicely warmed. Then we consider if the heat is too strong, and if it is we subdue it by ventilating, and very soon the bed is ready for the plants. We now lift them carefully with a trowel, and plant only one to each light, in the centre of the hillock, which is raised so as to bring the plant very close to the glass. If carefully handled, and aided with the syringe, and kept as close as possible, without allowing the heat to rise above 90° , they take hold of their new position at once, and make a splendid start, and thereafter give very little trouble; for fly and spider have no relish for plants so treated.

The question of soil is one of some importance. The melon will not thrive in a light soil, and it is not well to incorporate with the compost any considerable proportion of manure; the top spit of a pasture, where the staple is a stiff brown loam, will answer admirably; but it should be laid up some time previously, to get rid of tipula grubs and wire-worms, and to rot the fibre in some degree. Three parts of such soil, well chopped up with one part of well-rotted hot-bed manure, will form a good compost, and in planting it will be well to fill in round the root with a mixture of fine soil—say equal parts of turfy loam, leaf-mould, and rotten manure, to coax the roots into immediate action.

THE SUMMER CULTURE is simple enough, but the attentions requisite must be regularly given, or disappointment of some sort will be sure to occur. In the first place there should be no shading from first to last, except when the plants are first put out, and even then it will only be necessary if the weather happens to be very bright, in which case two or three rhubarb leaves may be laid on the glass, for a few hours every day, to mitigate the fervour of the sun's rays. As to watering, we must differ from the books again, in recommending a more generous treatment than is usually prescribed, for melons are thirsty, and will be cleaner and more robust if regularly syringed overhead, and kept nicely moist at the root by regular watering of the hillocks. They will not endure the degree of humidity that cucumbers enjoy; but they are often kept too dry, and become the prey of various insect plagues in consequence. As to ventilating, that must be to some extent regulated by the heat of the bed and the state of the weather; but as the plants cannot be kept in health without plenty of air, it is desirable to ventilate as freely as possible—consistent with maintaining a proper temperature. With this in view, the cultivator will take care to have heat enough to render air-giving both safe and desirable. In many cases the dry system is adopted because free watering has been found to promote canker and damping at the collar. But if the drainage of

the hills is secured in the first instance, by a foundation of rubble, and *soft tepid water* is always employed, and the bottom-heat is right, melons will enjoy more moisture than they usually obtain, and in return for it will give heavier crops and finer fruit.

The plants must be allowed to spread until they reach within six inches of the side of the frame, and then the point of every shoot must be pinched out. It may be remembered, however, that if they are never stopped at all, they will just as surely fruit, but judicious stopping causes a more plentiful production and more equable distribution of those secondary shoots on which the fruit is produced. It is customary to "set" the female flowers with farina from the males, but we have always found the crop to be as good in a bed where we never "set" a single flower, as in one that was most punctually and carefully attended to. We give the bees the credit of taking this task off our hands, for they are assiduous workers amongst melons and cucumbers.

In due time the fruit will appear, and the cultivator must have the courage to refuse nature's generous offer of many more fruits than the plants can ripen properly. As soon as a fair crop is set, persist in suppressing the flowers as they appear, and stop every fruit-bearing shoot at about four eyes beyond the fruit. And what is a fair crop? it may be asked. A large sort, such as Beechwood, may be allowed to carry half-a-dozen fruit, and a smaller sort, such as Scarlet Gem, may carry nine.

As the fruits swell, keep the plants going with a good heat and liberal watering, and if the leaves appear yellowish through having exhausted the hillock, water twice a week with guano water, made by adding half an ounce of guano to every gallon of soft water. If the roots run upon the surface much, cover them with a dressing of fresh soil at the rate of about a barrow-full to every hillock, taking great care not to bruise the stems or the leaves in the operation. As the fruits acquire their full size, discontinue syringing, and lessen the supply of water at the roots, and give air freely, but be careful the heat does not go down, for melons must be ripened in a good heat to have proper tenderness and flavour. Every fruit should from the first rest on a tile or slate, unless the plants are trained to a trellis. They must not be cut the instant they have acquired their proper colour, or they will be comparatively worthless; the signal for removing them is when they emit a powerful odour, and after being removed they should be kept a few days before they are cut for eating.

The two melons here figured are the hardiest of the family, and well adapted for frame culture. We grew fine crops of these last year by a very cheap and simple method. We had a lot of coarse waste hay not good enough to feed a donkey, and this we converted into fermenting material. It was spread and sprinkled to form a large bed, and the soil was put on in hillocks, and the frames were put in their places and shut up close. In the course of a few days there was a nice heat rising, and we sowed two or three seeds on every hill. The plants soon appeared, and we allowed only one of the Little Heath to each light, and two of the Queen Anne's Pocket. There they

remained for the season, they were never stopped or transplanted, or assisted with linings, and yet they ripened good crops, and, indeed, the crop of the little Queen Anne's melon was prodigious.

IN SELECTING SORTS it is necessary to bear in mind that, as a rule, green-fleshed melons are the best. The *Beechwood*, *Small Egyptian*, and *Bromham Hall* are fine old sorts, that will render good service if the seed be true. *Bellamore Hybrid*, *Prince of Wales*, and *Victory of Bath* are newish varieties of the green flesh section, that may be trusted for beautiful fruit of the finest flavour. The best scarlet-fleshed variety is *Scarlet Gem*, which requires more heat than *Little Heath* (here figured) which is in every way good, besides being hardier and more prolific. An extremely nice melon, with rich pink flesh, is *Princess Alice*, a handsome, netted fruit of a buff-yellow colour. *Queen Anne's Pocket* is valued for decorative purposes, but for eating is comparatively worthless, or at the best only fit to amuse children.

S. H.

SEASONABLE WORK IN THE KITCHEN-GARDEN.

BY GEORGE GRAY,

Head Gardener, Ewell Castle, Surrey.



THE month of March is a busy time in the kitchen-garden, because so many of the main crops, both for summer and winter use, have to be sown, or planted, and those who take the necessary steps to secure thoroughly good crops have plenty of work to occupy their head and their hands. It is, in the case of the majority of the crops, most essential that they should be sown or planted at the right moment, to insure the best possible results. Therefore every effort should be made to have the seed in readiness for sowing immediately the ground is in proper condition for its reception. The time of sowing and planting must to a certain extent be regulated by the situation and the character of the soil. As, for example, some crops may be sown on naturally dry, warm soils, or in southern counties, in the early part of the month, which if the soil is naturally cold and wet, must not be sown until quite the end of the month. As a rule, all the crops that will be alluded to must be sown as soon as the soil is in a nice working condition. The most important of the crops to be sown now are: cabbage, brussels sprouts, and winter greens generally; onions, carrots, and other root crops; peas and beans; and successional supplies of such things as lettuce and spinach.

The cabbage and winter greens should be sown in beds and transplanted. As it is not good practice to sow the seed so thick that the plants smother each other as soon as they commence to produce rough leaves, a bed about four feet in width and eight or ten feet in length should be provided for each subject. The best course is to select a border similar to that recommended for the length of

March.

the beds, and then mark out the beds with pegs, and tread an alley between them. If there is no border available, sow in drills two feet apart and about twenty feet in length, each drill being devoted to a separate crop. The seed may be sown rather thickly in the drills, as the plants have plenty of space for their development on each side. By acting upon this advice a good stock of sturdy plants will be obtained, without the labour incidental to transplanting them, previous to their being planted in their permanent quarters, and they will be much stronger than those crowded together in the seed-bed until planting time, as is very generally the case.

The early and main crops of potatoes must be planted early to insure good crops. The middle of the month is most suitable for planting on dry soils, and the end on soils of a heavy character. The work must be regulated by the weather, and the state of the soil, for there will be no gain in planting when the soil is in a wet, pasty condition, for it will be trodden so firm as to require considerable labour to break it up between the rows after the potatoes have pushed through the soil. The earliest varieties must be planted first, and have the warmest position the garden affords. These may be planted in rows about eighteen inches apart; but the late sorts for main crops should be planted in rows from three to four feet apart. This will afford the branches plenty of room to spread, and there will be no loss of ground, for the space between the rows may be planted with winter greens, and two crops really obtained from the same quarter. The seed potatoes should be of a medium size, quite firm, and furnished with short purple sprouts, for much better crops will be obtained from them than from those which have been laying in a heap all the winter, and have produced long white shoots, that have had to be removed. Planting in drills four inches in depth, made with the spade, is preferable to planting with the dibble, as is still very generally practised.

The onions, carrots, and parsnips should be sown in drills in beds four feet in width, and as it is most important that the soil be in good condition when the seed is sown, the preparation of the beds should commence at once. Select a quarter which was dug over in the autumn, and if the surface is pricked over with a fork, it will be in capital condition for sowing in about a fortnight afterwards. The drills for onions and carrots should be twelve inches, and for parsnips fifteen inches apart. Let the soil be in a nice friable condition when the seed is sown, and after the drills are filled in tread the bed to make the surface firm, and then rake it over lightly, and in doing this remove all stones and large lumps of soil.

The rows of peas and broad beans sown now should be placed from six to eight feet apart, to admit of dwarf-growing crops being planted between them. The peas, if sown in trenches prepared in much the same way as for celery, but not quite so deep, will produce better crops than they will do if sown on the level in the usual manner.

POTATOES FOR PRESENT PLANTING.



LAST year a large and comprehensive trial of potatoes was carried out in the gardens of the Royal Horticultural Society at Chiswick, with a view to test the productiveness, quality, and distinctive character of the varieties in cultivation. The trial, which was under the direction of the Fruit and Vegetable Committee of the Society, comprised 271 reputed varieties, the samples being obtained from the principal growers in the country. From the report of the trial, which has been prepared by Mr. Barron, the gardener-in-chief at Chiswick, the number of varieties was reduced by 156, leaving 115 to be described. Of these number a considerable proportion are either worthless or second-rate, and, therefore, not worth growing, excepting by potato-fanciers. It is only by systematic trials of this kind that correct conclusions respecting the value of the several kinds can be arrived at, and, for the assistance of our readers, we have prepared a list of the sorts which in the Chiswick trial proved to be the very finest in cultivation. It necessarily includes more kinds than will be required in any one garden, but the trials which have been carried on in the Experimental Garden at Stoke Newington during the past ten years have proved most conclusively that one of the best ways of making sure of a good supply is to grow a number of sorts, for one year some sorts will escape the disease, more or less, whilst others will suffer severely, and the next year those sorts which escaped the year previous will, perhaps, suffer the most, and *vice versa*. Much depends upon the stage of growth when the crop is attacked by the disease, and as the various sorts vary considerably in this respect, the safest plan is to grow several. A change of seed is also of great importance, for much finer crops will, in the ordinary way, be produced from seed procured from a distance than from home-grown samples. It is also essential that medium-sized tubers should be planted, and if they are firm, and furnished with short purple sprouts, it will be an advantage. We shall follow the classification adopted in Mr. Barron's report to avoid repetition, and render identification of the several varieties more easy.

WHITE KIDNEY-SHAPED.

Ashleaf Kidney.—This is still the best for frame culture and the earliest supplies from warm borders.

Kentish Ashleaf Kidney.—The best for planting for early crops in the garden. The tubers are handsome, of good quality, and it is an excellent cropper. It is known by no less than eighteen different names.

Myatt's Ashleaf Kidney.—Very similar to the preceding, but rather later. It is of excellent quality and a heavy cropper. This is also known by a number of names.

Fluke.—This is well known as one of the best late varieties on

March.

soils which suit it. On cold heavy soils it is liable to be cut off with the disease, but on deep loamy soils resting upon a dry subsoil, it is the finest potato we have for late use.

Model.—A handsome heavy-cropping variety for late use. The flesh is rather close in texture, but superior to many in cultivation.

Oxfordshire Kidney.—A handsome late productive variety, of good quality.

Bresee's Climax.—An American variety of great merit. The tubers are large and handsome, the flesh white, and of excellent quality; productive, and one of the best second earlies.

Excelsior Kidney.—A much-improved form of Dawes' Matchless, and one of the finest second earlies. The tubers are large and handsome, the flesh white and of extra fine quality. It is a heavy cropper, and was awarded a first-class certificate.

King of the Flukes.—A very handsome variety, but second-rate in quality, and a moderate cropper.

Sextus.—A handsome variety of the Fluke section, but a moderate cropper only.

Lapstone.—A most valuable variety. The tubers of medium size, variable in form, and handsome. It is excellent in quality, and best adapted for use from October to May. The best type of Lapstone is *Headly's Nonpareil*.

Bresee's Peerless.—A heavy-cropping handsome variety, of good quality, and valuable for use in mid-season.

Paterson's Victoria.—A robust productive variety of good quality; one of the best for late use.

WHITE ROUND.

Regent.—A well-known productive variety of excellent quality for winter use.

Dalmahoy.—Similar in character to the preceding, but the tubers are more even in outline, one of the very best round varieties for late autumn use.

Early Union.—A useful early variety, producing a good crop of medium-sized clean-looking tubers.

RED KIDNEY-SHAPED.

American Late Rose.—A most valuable second early variety, producing a heavy crop of large handsome tubers of excellent quality; much superior to the Early Rose.

Extra Early Vermont.—A valuable new American variety, which is reported to have produced enormous crops in America, but in the Chiswick report it is described as "an average cropper." The largest crop which is said to have been raised in America from 1 lb. of seed is 603 lbs., or about eleven bushels. It was considered one of the best new potatoes at Chiswick, and a first-class certificate was conferred upon it.

Bountiful.—A handsome variety. The tubers of medium size, and even in outline; flesh white, and of good quality.

RED ROUND.

Red Emperor.—A large handsome variety, of great value for

exhibition ; a good cropper and of excellent quality ; rather subject to disease.

Red Regent. — A heavy-cropping late variety, suitable for field culture.

Wood's Scarlet Prolific. — A handsome late potato, productive, and of good quality.

Vermont Beauty. — A heavy-cropping second early variety, handsome in appearance, and of good quality.

King of the Earlies. — A useful early variety, which, when first distributed in America, was sold at the enormous price of 50 dollars a root. The tubers are of medium size and good quality.

SKIN STREAKED OR FLAKED.

Hundredfold Fluke. — Very distinct and good ; the tubers large, long, and handsome ; the skin pale, with large patches of purple. It is a heavy cropper, and of good quality.

Rintoul's Striped Don. — Like the preceding, very distinct. The tubers are large, roundish ; skin pale, straw streaked and flaked with purple. It is a heavy cropper, handsome, and of good quality.

The foregoing list includes twenty-six varieties, all of considerable excellence, but for the assistance of those who will not require more than ten sorts, we have selected the undermentioned as being most suitable for garden culture on all kinds of soils, and the best for maintaining a supply throughout the year.

Earliest, *Kentish Ashleaf* and *King of the Earlies*. Second early, *Excelsior Kidney*, *Bresee's Climax*, *Dalmahoy*, *Late Rose*. Late, *Oxfordshire Kidney*, *Paterson's Victoria*, *Regent*, *Lapstone* (type represented by *Headly's Nonpareil*). The *Fluke* should be grown for the latest supplies, where it does well. *Extra Early Vermont* and *Vermont Beauty* are yet too expensive to be grown in quantity.

HOW TO SAVE THE FRUIT CROP.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



SO frequently have sharp frosts during the time the fruit-trees are in bloom, that protection in some form or other is essential for the preservation of the flowers, and a few remarks upon the subject will probably be useful. The protection of fruit-trees from spring frosts is a matter requiring a considerable amount of practical knowledge to carry it out efficiently, for it is a very easy matter to injure the trees and do a considerable amount of mischief to the crop by the improper use of protecting material. Too much protection is in many cases as bad, if not worse, than none at all, although a very general impression prevails that provided the trees have a good covering of canvas or similar material, the crop will be safe ; but it is not so, for the peach, and other trees usually trained to the open walls, are

March.

perfectly hardy, and the protection of the flowers and the young fruit is all that is needful for the cultivator to provide. In taking into consideration the value of the several kinds of material available for protective purposes, it will be necessary not to lose sight of the fact that it is of nearly as much importance to keep the flowers dry as it is to protect them from frost. When dry, several degrees of frost do them no harm, and a certain degree of dryness is essential for a proper distribution of the pollen. It is also desirable that a circulation of air should be continuously going on about the flowers, and this cannot well be the case when the trees are enveloped in a covering of thick material without intermission. Thick coverings are very well when they are fixed in a manner that will admit of their being drawn up and down as may be desired; but as they are, comparatively speaking, expensive, and take up more time every day than can well be spared, it is not likely they will ever be brought into general requisition, especially in the garden of the amateur. It will therefore not be necessary to enter into details in reference to this form of protection.

Wall-copings are most useful, for they materially check radiation and assist in keeping the flowers dry. Those made of glass are preferable, as they can be left over the trees several weeks longer than those made of wood; but copings made of thin boards, and about fifteen inches in width, answer very well, and can be recommended. These copings should slope slightly, and the protecting material be fixed to the edge. For amateurs, old fish-nets, which can be purchased at the rate of about a penny per yard, answer admirably, for they admit of a free circulation of air going on and at the same time afford most efficient protection from the frost. It is needful to hang two or three thicknesses of netting over the trees, and to prevent it swaying to and fro, poles of wood should be fixed at intervals of ten or twelve feet apart, and the netting hung over and be fastened to them at the bottom. The poles may be let into the ground to keep them steady, and lean against the coping. In case no coping is employed, the netting must be fastened to the top of the wall and be kept away from the trees with poles as here described, or with stout pieces of wood about fifteen inches in length, and having forks at the end to hold the netting. There is nothing new in the use of netting, although many amateurs appear to know but little about its value for protecting purposes. The netting should be put over the trees before the buds are expanded, and be removed as soon as the trees are furnished with sufficient foliage to protect the fruit from morning frost.

Those who are not disposed to incur the expense of the netting, may protect the trees with branches of the spruce-fir if available. The branches should be cut up into moderate-sized portions, and fastened to the wall with ordinary cast-iron wall nails. They must be spread thinly over the tree, or they will, from the causes already explained, do more harm than good. It is also essential to remove them before the trees have made much growth, to prevent the shoots being drawn out in a weakly manner.

The bloom of bush and pyramidal apple, cherry, and pear-trees

of a convenient size, can be protected from spring frosts by hanging branches of fir or evergreens from the ends of the principal branches, and also by hanging nets over the trees.

In all cases the amateur may be well assured that if the trees are protected in accordance with the suggestions made in the foregoing remarks, the results will be most satisfactory, and more than compensate for all the labour and expense necessary for affording the trees protection. Considering the amount of labour required to keep the trees in proper order, it is certainly worth while to protect the bloom and reduce the risk of a total destruction of the crop.

PARLOUR TABLE FERNS.

BY MRS. W. H. HANBURY.



UNLIKE many of the experienced writers who contribute to the FLORAL WORLD, I cannot tell your readers how to build and furnish large fern-houses; but I can, perhaps, say something about fern-growing that will be welcome to many of your lady readers. I know that many ladies, like myself, are very fond of having ferns in the parlour, and I know, too, that there is more difficulty in having them in perfection than those who have not had any experience in the matter would for a moment suppose. When I first began to grow ferns in the living-rooms, I had more failures than I would like to tell of here; but those failures have not been altogether lost upon me; and, moreover, I shall be able to tell my readers what to avoid as well as what to do.

We have two large square cases, which are now nicely filled with ferns, and a number of pans covered with glass shades. It is of the latter that I should like to speak, because they are within everyone's reach, whilst the larger cases are expensive; and no one should commence without Mr. Hibberd's "Fern Garden," to advise them upon the way in which the cases should be fitted up and managed. It has been of the utmost value, and if I had had a copy when I first began, a very considerable amount of disappointment and vexation would have been avoided. The cases to which I refer are so attractive, when nicely furnished, that they form admirable ornaments in any of the rooms where the space can be found for them.

The pans which I use vary from nine to fifteen inches in diameter, and are made of terra cotta, and have a rustic appearance. They have a better appearance than the red pans, which cannot be tolerated indoors, even when decorated with fanciful rims, and stand upon feet, and they are cheaper than anything else that would be suitable for the same purpose.

In commencing the culture of ferns in these cases, for the parlour-table, it is necessary to select kinds which do not grow too large. Many ladies meet with large-growing ferns in a small state, which have a very pretty appearance, and without ascertaining the

size they attain, they bring them home and plant in the case. They are no sooner planted than the fronds spread out, touch the sides of the case, and instead of growing in a natural manner, run along the side of the glass, or are bent over at the top, and in both instances have anything but an elegant appearance. To avoid this, it is essential that the ferns, when fairly developed, will just fill the glass, and which, moreover, can be kept to the desired size by the removal of a few of the outside fronds. One of the best is the maidenhair fern, which is known in the books as *Adiantum cuneatum*. If you only grow one fern, this should be selected in preference to all others, for it is easy to manage, and the favourite of everyone. *Adiantum setulosum* is another useful fern of a similar character to the preceding, and very beautiful. The sea spleenwort, *Asplenium marinum*, and *Scolopendrium vulgare ramo-marginatum*, are quite distinct from the preceding, and remarkably beautiful. The green spleenwort, *Asplenium viride*, and *Doodia caudata*, are two pretty little ferns, admirably adapted for planting under small shades. These six will be quite sufficient for a beginner, as only one plant should be put under each, excepting when the small growers are put under large glasses, and then three or four plants of the same sort should be put together. I have acted upon the advice given in the "Fern Garden," and have covered the surface with a dwarf-growing lycopod, or selaginella, and the effect is very beautiful, as the green ground-work shows off the elegant fronds of the ferns much better than the brown soil.

In preparing the pans, I put first of all a layer of charcoal, in lumps, and cover it with moss. The gardener, meanwhile, prepares a mixture of peat and sand, by breaking the peat up into rather small lumps, and then mixing the sand with it. To this is added the dust and small nodules of charcoal, left after the larger lumps have been put in the bottom of the pans. The latter are then filled with soil, and the ferns are planted in the centre, and after the soil has been pressed moderately firm, the lycopod is dibbled over the surface; usually little tufts are put at a distance of about three inches apart. They soon take possession of the soil and spread over the surface, and form a carpet of the most exquisite greenery. The lycopod I have found to succeed best is the one found in the catalogues as *Selaginella denticulata*. A good potful of this, obtained from a nursery, would furnish a supply sufficient for several pans.

The management of the cases is kept entirely in my own hands, and as I take a great interest in them, they are examined frequently. The soil is maintained in a nice moist state, at all seasons of the year; but much moister during the warm summer weather than in the winter. It is impossible to say how often water should be applied, for some kinds require more than others, and plants of the same sort vary in their requirements. The only advice that can be given is to recommend regular examination, and to water when the soil is becoming dry. Some ladies consider it necessary to apply water frequently, and in small quantities, but the practice is most hurtful to the ferns, for the soil soon becomes saturated on the surface, and remains dry underneath. The ferns may be sprinkled

overhead occasionally during the summer, as it keeps the fronds clean and gives them a delightfully fresh appearance.

The ferns do not require much air, and if the shades are lifted off about twice a week and wiped with a clean dry cloth, and put on again, they will have all the air they will require. It is a great mistake to take the shades off for an hour or so of a sunny morning, with the idea that the exposure to the air and sunshine will be beneficial to them. It is a very common practice for ladies to do this, and then they wonder why the ferns turn brown and have a sickly appearance. This exposure is most hurtful to them, and if the glasses are removed for a short time it should be on a dull, still morning.

The present moment is most favourable for fitting up fern-cases, as the plants will soon commence to grow freely, and will quickly become established in their new quarters, and present an attractive appearance throughout the summer season. If at any time the plants become sickly, the best course will be to take them out of the pans and replant in fresh soil.

THE AUSTRALIAN BLUE GUM TREE.



THE Blue Gum Tree, of which we have of late heard so much in reference to its reputed virtue of purifying the atmosphere of miasmatic districts, and preventing attacks of fever, is by no means so new to English gardeners as some of the writers appear to suppose. According to "Paxton's Botanical Dictionary," it was introduced to this country in 1810, upwards of sixty years ago, but owing to its possessing no special value as a decorative plant, but little was seen or heard of it until Mr. Gibson planted it rather extensively in the Subtropical Garden in Battersea Park a few years since. Since then it has been grown in the other parks in the neighbourhood of the metropolis, and also in many of the principal private establishments in the country where subtropical plants have a place in the flower garden, as it consorts admirably with the cannas, castor oils, solanums, and other free-growing subjects. It has a branching pyramidal habit, as represented in the illustration which appeared in the FLORAL WORLD for August, 1868, and the leaves and bark are of a greyish-green. Like other members of the same genus it is remarkably free in growth, and under favourable conditions will, in this country, attain, in one season, a height of ten feet. In its native habitats in Australia and Tasmania, the trees attain an average height of two hundred feet, and have a stately aspect. There are examples in this country which have been out of doors three winters, and have attained a height of nearly twenty feet. In kind climates it is likely to live out of doors for several years; but winters like those of 1860-1 and 1866-7 would, there can be but little doubt, cut the plants down to the ground. The leaves emit a pleasant camphorous

odour, when drawn through the hand, and its power of purifying the atmosphere is said to consist in its draining the ground thoroughly by the action of the roots, and in giving off this camphorous odour freely. It would take too much space to speak of all the virtues attributed to it, and I will proceed to show how it may be grown by those who are desirous of having a few plants.

The most simple and the cheapest way of obtaining a stock will be to procure a packet of seed, costing a shilling, and sow in pots filled with a light sandy mixture. The pots can be placed in a frame or greenhouse, and in a comparatively short space of time the seed will germinate, and as soon as the plants are a few inches in height they can be put separately in pots of a small size. In a few days they will be well established in the pots, and may then be placed amongst the ordinary occupants of the greenhouse, or be removed to the frames and put with the bedders.

The Eucalyptus may be grown in pots for the windows or the conservatory; or it can be planted out in the flower beds or shrubbery borders, according to individual wish. If the plants are to be grown in pots, they will require shifting, when well established, into six or eight-inch pots, according as they may be required for the window, or the conservatory. Use good turfy loam, leaf-mould, and a small proportion of sand. Those intended to be planted-out will require no shift, as they can be put out towards the end of May. In the autumn they can be potted-up for the conservatory or left in the border to take their chance.

G. G.

NEW AMERICAN POTATOES.



PREVIOUS to the planting season of 1873, Messrs. B. K. Bliss and Sons, the well-known seedsmen, of New York, offered prizes of 100, 75, and 50 dollars respectively for the produce of 1 lb. of seed of *Compton's Surprise* and *Extra Early Vermont*, two new potatoes of which they hold the stock. The official report of the committee has been recently published in the *New York Tribune*, and is a most interesting document. The committee, which consisted of Professor George Thurber, president of the Torrey Botanical Club, Dr. F. M. Hexamer, and Mr. P. T. Quinn, appeared to have had a rather difficult task; and it is satisfactory to find that it was discharged with so much ability. The committee report that, owing to irregularity in making up the returns, or in not complying with the regulations formed for the guidance of the competitors, they were not able to notice several very heavy and remarkably fine crops. After rejecting the returns that were irregular, or not properly authenticated, they made the awards as follows:—

For the largest quantity of Extra Early Vermont from 1 lb. of Seed.—First prize to J. I. Salter, St. Cloud, Minn., 607 lbs., 100 dollars; second prize to H. C. Pearson, Pitcairn, N.Y., 437 lbs.,



VARIETIES OF EGG PLANTS.

EGG PLANTS.

(With Coloured Illustration of Varieties of *Solanum ovigerum*.)



EGG PLANTS are so rarely seen in English gardens that it is fair to assume they are not sufficiently understood. The reader will be inclined to ask why they should be understood, and it is part of our business to indicate the claims they have on our attention as garden plants. They are in any case interesting and handsome, and worth growing to vary the round of decorative plants available in the summer season. But they are all eatable, and two or three sorts amongst a dozen or so in cultivation are of such high character that those who will grow them, and cook them and eat them, will enjoy the gratification of having discovered a new pleasure. In the summer of 1873 we grew a large collection of Egg Plants from seeds supplied by Mr. William Bull, of King's Road, Chelsea, and they afforded us so much amusement that we had a plate prepared to represent the more distinct varieties, hoping thereby to be enabled to interest our readers in a somewhat new subject.

The Egg Plant, *Solanum ovigerum*, is an annual of somewhat coarse growth, producing flowers resembling those of the potato, which are followed by fruits of various shapes and colours, all of which are edible and wholesome. The variety which produces white fruit is the best known, and is the one generally cultivated for ornamental purposes, its fruits bearing a close resemblance to fowls' eggs. This, however, is the least valuable as an esculent, and therefore when Egg Plants are grown for the table, the common white variety is not worthy of attention. They are strictly greenhouse plants, requiring the same cultivation as balsams or capsicums. Ours are grown in a house devoted to summer cucumbers, which do not shade the Egg Plants over-much, and these last occupy vacant places on the beds in which the cucumbers are planted, saucers being placed bottom upwards for the Egg Plants to stand upon to prevent them rooting through into the borders that are occupied with the roots of the cucumbers. The seed is sown in pots or pans in March or April, and has the advantage of a mild hot-bed to start it into growth. As soon as the plants are large enough, they are potted singly in thumb pots, the soil being light and rich as for fuchsias or balsams. They are kept rather close and warm until they have made a fresh start, and thenceforward they require very little care indeed, for the same amount of warmth, and air and atmospheric moisture that suit the cucumbers suit them also perfectly. They are shifted on as fast as they fill their pots with roots, until they occupy eight or ten-inch pots, after which they are allowed to become pot-bound, and they soon flower and fruit freely. The culture might begin in February for an early supply of fruit, but the young plants would require a good hot-bed or a snug corner in the stove to keep them going until the season was sufficiently advanced to enable them to take their places without harm in the

greenhouse. Regular supplies of water they must have, of course, and as they begin to show fruit, it will be necessary to increase the supplies, and to aid them further with weak manure water. Every plant must be tied to a neat stake in good time, but usually they will not want support until they are in their fruiting pots. Let them swell all the fruit they show, and if by this time the weather is unusually hot, they may be put out in the sun in a spot sheltered from the wind, and they will enjoy the change. We have, however, always obtained handsome plants and fine crops of fruit without removing them from the cucumber house.

In 1873 we planted out the twelve varieties we had from Mr. Bull, but they did no good. In a hot season like 1868 or 1870, they would no doubt fruit freely in the open ground, but they would certainly not adorn the garden, for although they have some nobleness as pot plants, they have none when growing in the open border.

The *Common White*, as remarked above, is the handsomest, and therefore the best for ornamental purposes. It is too tough and fibrous to be of any use for the table, and therefore should not be grown as an esculent.

The *Giant White* is a robust variety of the common white.

The *Giant Purple* produces immense globular or elliptical fruits of a beautiful violet or blackish-purple colour. This is a good table fruit.

The *Green Thibet* is the largest of all, the colour dull green with occasional patches and streaks of purple. It is a mass of delicate pulp, with very few seeds, and most delicious when nicely cooked.

The *Black* is a large fruit of a very dull, deep purple colour. It is handsome and curious, but of less value for the table than the green.

The *Scarlet* fruited is a very tall-growing plant, flowering and fruiting later than the rest, and requiring more heat than suffices to bring them to perfection. It is not worth growing unless it can have stove heat.

When Egg Plants are regarded as subjects for the art of the cook, they are called *Aubergines*. Under that head in all cookery books will be found directions for dressing them. We have had them served in all possible ways, and the one we prefer is our own—it is the simplest too, and that we think is a recommendation. Two or three large green or purple fruit are sliced up as thin as lemon peel, the seeds being carefully removed. They are fried of a fine brown in fresh butter, and served hot with a cut lemon and cayenne pepper. There is nothing finer to accompany a sweetbread or a cutlet.

S. H.

THE CRANBERRY CROP of New Jersey, U.S.A., of 1873, was, according to a report of the Cranberry Growers' Association, exceedingly good. There appears to be 17,000 acres of land devoted to cranberries, and the crop is said to have amounted to 125,000 bushels. Through the courtesy of the Association we received a short time since a consignment of cranberries of splendid quality, the berries resembling small Morello cherries, and totally different from the cranberries which are usually met with at the grocers.

BALSAMS FOR EXHIBITION.

BY T. WILLIAMS, CRYSTAL PALACE, SYDENHAM, S.E.



BALSAMS are invariably more or less plentiful at the provincial exhibitions held towards the end of the summer and in the early part of the autumn, but it is not often that they are presented in true exhibition style. Instead of the large bushes densely furnished with deep green leafage and flowers of the finest quality, which we have a right to expect at these gatherings, plants remarkable for legginess and poverty of appearance are the rule rather than the exception. This is not as it should be, and a few practical remarks at the present moment will undoubtedly prove of considerable service to many readers of these pages. Possibly a few only may be desirous of exhibiting their productions, but, as well-grown balsams are of immense value for the decoration of the conservatory, and exhibition specimens especially so, the hints will be useful to all who grow these flowers, but have not yet succeeded so well as they could wish.

One of the chief causes of failure is sowing the seed too early. A hot-bed is made up for propagating purposes in February, or early in March, the seed is sown, and, owing to the deficiency of light, the want of air, and the inevitable crowding, the plants are drawn up so tall and weakly, that the most skilful cultivator would fail in making specimens of them. Another cause is starving the plants during the earlier stages of growth; they are kept in small pots long after they have become pot-bound, with the consequent results that the foliage is injured by the attacks of red-spider or thrip, and the plants forced prematurely into bloom. By shifting and frequent syringing they partially recover, but they do not present that healthy appearance common to those which have been placed under favourable conditions from the first. Insufficient ventilation, and placing the plants too far from the glass, favour the production of long-jointed wood, of which we see so much at all the exhibitions; and by commencing too early it is indeed most difficult to afford the plants a sufficiency of light and air.

It would not be difficult to give the whole code of balsam culture in a very few words, but as this is written more especially for those who have not had much practical experience, it will be necessary to explain the details at some length. The first step to take is to procure seed saved from a really first-class strain. Cheap seed is worthless, for the plants raised from it will produce semi-double flowers, pale and washy in colour, and be a constant source of annoyance. The *Camellia-flowered* and the *Rose-flowered* are the two best types of balsams, and both are offered in collections comprising nine distinct colours, costing half-a-crown each collection. One collection will be quite sufficient for an amateur, and the first-mentioned type is to be preferred. To keep the colours separate, so as to insure a fair proportion of each, if more plants are raised than required, sow in separate pots. Those five inches in diameter

are the most suitable; and in preparing them, place two or three inches of crocks in the bottom, and then fill with a light compost consisting of equal parts loam, sand, and leaf-mould. In this mixture the young seedling will root freely, and at the proper moment may be lifted with a fine tuft of roots. Make the surface level, sow the seed regularly, and cover with about a quarter of an inch of soil.

The best place for getting the seed up quickly is a mild hot-bed; but if the pots are placed in a sunny position in the greenhouse, and the soil kept in a nice moist state, there will be no difficulty in inducing the seed to germinate quickly. Whether in the pit or the greenhouse, the plants must be placed within a foot of the glass when they are fairly above the surface, and be potted off singly as soon as the first pair of rough leaves are developed. Much depends upon the manner in which this is done; and to do this nicely, prepare a sufficient number of small sixties by putting two or three pieces of crock and a pinch of the roughest portion of the compost. Have in readiness a mixture of two parts loam, one part leaf-mould or manure, and a dash of sand. Lift them out of the seed-pot with a wooden tally, and pot carefully to avoid bruising the stem, which at this stage is exceedingly soft and tender. Sprinkle them moderately with tepid water, after the potting is completed; and during the first two or three days afterwards keep them rather close, and shade during brilliant sunshine. The shading must not be employed a day longer than is really necessary, because immediately the roots begin to push into the new soil, the plants will commence to grow freely, and unless fully exposed to the light, the new growth will be soft and long-jointed. A genial bottom-heat will at this stage be of great assistance in promoting a vigorous growth, but most satisfactory results can be obtained without its aid, and it is not needful to provide it specially for them. If the progress made is satisfactory, they will have filled the pots sufficiently full of roots to render it necessary to shift them into larger pots in about three weeks after they are potted off singly. At this shift use five or six-inch pots, according as it is intended to flower them in eight or ten-inch sizes; and in this matter the cultivator must be guided by the regulations of the schedule of the exhibition at which it is intended to exhibit them. If intended simply for home decoration, the smaller of the two sizes can be the most strongly recommended. The final shift will become necessary immediately these pots are nicely filled with roots, and not before; for, whilst guarding against allowing them, through neglect, to become pot-bound, they must not be over-potted.

At the second and final shift use thoroughly clean pots, and place about two inches of rather small crocks in the bottom, to make sure of the drainage being perfect. As the compost must be moderately rich and open in texture, use two parts of turfy loam chopped up roughly, to a part each of manure and leaf-mould. Balsams root freely from the stem, and to keep them dwarf, if they appear too tall, pot them low enough to bury from one to two inches of the stem at each shift. No portion of the side branches must be covered with soil, or they will have the appearance of several plants being put in one pot.

After the end of May a cold frame will be found the most suitable quarters for the stock, and during this month they will not require the aid of artificial heat beyond that which is necessary to keep them safe from frost. The frames must be ventilated freely at every favourable opportunity, and in dull, showery weather draw the lights off altogether. When the air is still it is also beneficial to tilt the lights both at the back and the front. Liberal supplies of water will be essential, especially when the pots are well filled with roots; and when they are nicely established in the pots in which they are to bloom, liquid manure of a moderate degree of strength may be substituted with advantage for the clear water. This may be made in various ways, but possibly the most simple is to mix one ounce of guano and a large handful of soot with every three gallons of water. This should be prepared some time before required for use, and, if practicable, a quantity sufficient for several days' use should be prepared. They will require no stopping nor training, for there will be no difficulty in obtaining large bushes, provided the foregoing directions are attended to, and the plants placed far enough apart at each shift to prevent them touching each other before they are shifted again. After the last shift it will be necessary to examine them once or twice, and put them farther apart, if too close together. The finest flowers are produced on the main stem; but when large, bushy specimens are required, the buds must be removed from that portion of the plant as soon as they can be seen.

NEW FUCHSIAS GROWN AT CHISWICK, 1873.

BY THOMAS MOORE, F.L.S., FLORAL DIRECTOR, R.H.S.

(From the Journal of the Royal Horticultural Society.)



ANY of the varieties forming the trial collection were received last year, but so late or in so weak a condition that they were not fairly represented at the time the Committee made its examination. They were accordingly grown again this year from young plants. As in former reports, the mark *** indicates the highest quality, and the award of these marks is thus regarded as equivalent to that of a First-class Certificate.

ALPHA (G. Smith) *.**—Habit free and good, very free-flowering; bright carmine tube and sepals; the tubes short and slender, the sepals very broad and short; corolla of immense size, very double, clear violet; one of the very best.

AVALANCHE (G. Smith) *.**—Habit rather sparse and not very free; tubes small, sepals very short and broad for the size of the flower, light rosy red; corolla white, exceedingly double and large, and of fine form.

AVALANCHE (E. G. Henderson) *.**—Habit good and free; tube slender, sepals broad, deflexed, scarlet; corolla deep, full, and even, dark violet-purple; a fine bold variety.

April.

BLUE BEAUTY (Jervis) **. — Habit good, compact, free-flowering; tube short, sepals broad and short, reflexed, light red; corolla large, very double, clear purple.

CROWN PRINCE OF PRUSSIA (Veitch) ***. — Habit dwarf and free, and a free bloomer; flowers large, the tube bulged, the sepals broad, scarlet; corolla prominent, dark violet-purple; reddish at the base; good.

DELIGHT (Smith) ***. — Habit excellent, and a free bloomer, of first-class merit for decorative or exhibition purposes; tube and sepals clear crimson, the latter sufficiently reflexed; corolla very large, pure white, with a few rosy streaks near the base. A really good variety, the best of its class.

LA FAVOURITE (Veitch) ***. — Habit first-class; tube and sepals well proportioned, the latter reflexed, scarlet; corolla large and of good substance, well expanded, light violet. A very free-flowering and good variety.

L'EMPEREUR (Cannell) **. — Habit dwarf and floriferous; tube and sepals scarlet; corolla single, white.

LUSTRE (Downie and Co.) **. — Not of free habit; flowers with blush recurved sepals, and deep red compact corolla. Approved for its colour.

NOBLESSE (Veitch) ***. — Habit good and free; flowers with bright crimson-scarlet tube and sepals, the former slender, the latter spreading; corolla deep maroon. The darkest coloured in the collection, and of first-class quality.

RODERICK DHU (E. G. Henderson) ***. — Habit good; tube and sepals bright scarlet, the latter well reflexed; corolla expanded, lavender-blue.

SCHILLER ***. — Habit somewhat loose; flowers large, the tube and broad-spreading sepals white-green at the tip; corolla clear rosy purple, with white feather at the base.

STARLIGHT (G. Smith) ***. — A fine variety, not sufficiently known. It has the same habit and the same free-flowering character as Lady Heytesbury, but the corolla is of a bright crimson-lake. It is really a first-class fuchsia.

VICTOR (Bull) **. — Habit strong and compact; very bright scarlet tube and sepals, the latter not much reflexed; corolla of immense size, but coarse and irregular, pale purple, changing to reddish purple. Not a very desirable fuchsia.

WAVE OF LIFE (Veitch) ***. — Habit compact and good; leaves pale yellow at the points; tube and sepals bright scarlet, broad and reflexed; corolla prominent, intense violet, of good substance. A distinct and really good fuchsia.

WEeping BEAUTY (Veitch) ***. — Habit dwarf, free, and good; flowers medium-sized, tube rather bulged, sepals broadish, bright crimson-scarlet; corolla moderately expanded, rich deep purple. A very fine fuchsia.

WHITE PERFECTION (E. G. Henderson) ***. — Habit good, floriferous and drooping; tube and sepals long and narrow, bluish-white; corolla large, lake-crimson and rose.

A considerable number of the older kinds were also grown, and

the following is a selection of good and distinct varieties made by Mr. W. Spinks, while foreman at Chiswick, and in charge of the plants above described :—

Sepals and tube white, corolla contrasting.

ARABELLA—free	} dissimilar.
LADY HEYTESBURY—free	
STARLIGHT—free	
MAY QUEEN—late.	
MINNIE BANKS—distinct.	
WATER NYMPH—for colour.	

Sepals and tube scarlet, corolla white.

DELIGHT—largest single and best.	} not of good habit.
CONSPICUA—free, good single.	
PURITANI—for habit and free-flowering.	
ALEXANDRINA—extra bright tube and sepals.	
AVALANCHE—double, very large	
ENCHANTRESS—double, free-flowering	

Sepals and tube scarlet, corolla dark.

KILLICRANKIE—the most perfect form.
 NOBLESSE—the darkest.
 WEEPING BEAUTY—Dark and very fine.
 WAVE OF LIFE—distinct in foliage and good.
 SEDAN—the best-formed red-purple.
 MONARCH—very large and long, distinct.

HOW TO SEND FLOWERS BY POST AND RAIL.



VERY lover of flowers knows the importance of being enabled to send them safely on long journeys as messengers of love, or as replies to the possible question, "Does my old friend remember me?" It is our fortune or misfortune to receive parcels of plants and flowers daily, nine-tenths of which are so badly packed that we can make nothing of them, whether they are sent to be admired, named, judged, or to illustrate botanical problems. The remaining tenth or thereabouts are so wonderfully well packed, that although days may have elapsed in the course of their transit, and the weather may have been suitable for hay-making, they come out of the package to all appearance as fresh as they went into it; and we marvel that, while it is easy work to pack and post flowers for a long journey, very few amongst the many who make the endeavour succeed in the accomplishment of their heart's desire.

Flowers vary in their capabilities for travel. A spray of lapageria, bearing many of its noble, thick-textured flowers, might travel in a chip box without any harm five hundred miles in the hottest

weather. But a bunch of roses in the same kind of box would not hold together in a journey of fifty miles; indeed, they would shrivel and separate into their component parts before they reached the post-office, if put into a chip or card-board box without moisture-holding packing on a hot summer day. The usual failing in the sending of flowers by post is packing them in dry cotton wool, which robs them of their moisture, and appears to be peculiarly adapted to rob them also of all proper form and colour, for the very worst examples that come to our hands are those packed in this absorbent material in boxes that offer no resistance to the action of heat and dry air. A rose or a truss of scarlet geranium may be regarded as affording the best possible test of skill in packing and posting flowers, for, from the instant of their being cut, they are in haste to fall to pieces, unless sustained by suitable surroundings.

In order to furnish the reader with some useful information, we will suppose we are called upon to send flowers of all kinds and sizes, in all sorts of ways, by post or rail, or messenger, on long and short journeys, in all sorts of weather. We shall cut a few that are only half expanded, and having placed them between three or four freshly-cut leaves of Irish ivy, shall put them in a common paper envelope, and seal them up, and trust them to the post without fear. A certain amount of crushing they must be subjected to, but a twelve hours' journey will not destroy their character, for the ivy leaves will hold them firmly but softly, and impart to them moisture sufficient to sustain them for many hours. Large flowers, and especially such as are of succulent texture, cannot be transmitted in this way; it is indeed adapted only to such as are scarcely more substantial than a primrose or a buttercup.

We will now gather a bunch of flowers of fine quality, and adopt measures to despatch them safely a considerable distance. We shall bribe the doorkeeper of the household storeroom to find us an empty barrel of the kind that mustard, arrowroot, and other farinaceous comforts are usually packed in, both for sale and keeping. Having obtained the barrel, we shall bore a small hole in it with a brad-awl at each end, and provide a length of string of a size that will pass the holes easily. The next business will be to tie the flowers to the string as close as possible, then pass one end of the string, with the flowers head downwards, through the hole in the bottom of the barrel, and fill in carefully between the flowers with damp moss, or fresh grass mowings, or fresh leaves of any kind, those of the privet being perhaps the most suitable. Finally draw the other end of the string through the lid, shut up the flowers, and tie the two ends of the string over the outside, and your flowers are prepared for a long journey. You might throw the box from hand to hand, as the Duke of Queensbury's twenty-four cricketers contrived to send a cricket-ball fifty miles within the space of an hour.

Larger undertakings must be conducted on the same principle; the flowers must be fixed in the first instance, and then carefully bedded in moss, grass mowings, or green leaves; the grand thing is to *prevent evaporation*. If the flowers are actually wet, they will decay at a most rapid rate; if actually dry, they will surely

fall to pieces. Having secured a wooden box of suitable size, it will be advisable to cut a few narrow laths to fit inside, and then proceed to fit it. You are not tied down to one particular mode of procedure, but will do well to take your first lesson in this wise: On the bottom of the box put a layer of fresh ivy or privet leaves, and then a layer of flowers, which are to be covered with leaves very lightly. Now put one or two of the laths across to fix them firmly without pressure, and fix the laths in their places by means of brads driven from the outside. Proceed in this way until the box is filled, taking care, of course, to finish up with a layer of leaves on the top. When this package is nailed down, it may be tossed and kicked about in any way for days together, and the flowers will come out almost as fresh as they went in. If a tin box is selected, a slight wooden cage should be made to fit it, and the flowers should be tied to the cage, and be lightly bedded with leaves. If the weather be hot, and the journey long, tie the flowers in bunches with fresh moss round the stems, and dip the cage and the flowers into water, and then pack with moss or leaves, and despatch as soon as possible. It is better, however, to be content with the natural moisture of moss or leaves, than to resort to the use of water, for wet flowers long confined are almost sure to be more or less injured by decay of the outer petals. Tin-foil, and oiled paper, and gutta percha paper, may be employed to advantage in packing flowers with a view to arrest evaporation, but fresh moss or privet leaves will generally suffice as preservatives, and will be rendered the more effectual if large cabbage leaves are laid above and below the packing, so that they will not come into contact with the flowers. S. H.

FLORAL DECORATIONS ON A SMALL SCALE.

BY MISS A. HASSARD,

St. Ronans, Upper Norwood.



ANY flowers in bloom at the present season are admirably adapted for filling small stands or bouquets, a few of which placed about a room give it a refined and elegant appearance which nothing else will. I do not intend to give descriptions of large arrangements, I shall merely treat of a few small vases or specimen glasses, and I think I cannot do better than describe a few I saw at the house of a friend, and also some I had in use myself a few days since. The two stands in which my friend's flowers were arranged were to all appearance those elegant little glass tazzas with a trumpet rising out of the centre of each, which are so well adapted for standing on console tables, etc., in the drawing-room.

I remarked, "I see you have been investing in new stands, and a very pretty little pair they are, too. Where did you get them?"

The answer was, "Well, I don't mind letting you into a secret," and thereupon my friend raised one of the fern-fronds, which were

drooped thickly round the edge, and exposed to view the edge of a *common china saucer*, which same saucer formed the tazza, and the trumpet was formed by a well-shaped specimen glass being placed in the centre of the saucer. This little plan is worth knowing, as every one who attempts floral arrangements of any description possesses a few specimen glasses and, need I add, are likely to have saucers for their teacups. Four of these little contrivances and the same number of specimen glasses grouped round a nice plant of *Pteris tremula* or *Adiantum cuneatum* would have a pretty effect on a small dinner-table. After the flower-tubes were placed in the saucers, the saucers were filled in with silver sand, which was then made damp and planted over with a few tufts of *Selaginella denticulata*, which, if the sand be kept damp, will continue growing for weeks, and the flowers need only be replenished.

The saucer of one stand was filled with yellow rose-buds, Neapolitan violets, leaves of sweet-scented geraniums, a few fronds of *Adiantum cuneatum*, and the edge finished off by a thick wreath of fern fronds; in the little trumpet or specimen glass were simply a few sprays of *Deutzia gracilis* and ferns. The other little stand was arranged in just the same style, with the exception of scarlet pelargoniums in place of the violets.

My own four specimens, above mentioned, were arranged in pairs as follows:—Two were filled with white azaleas, *Deutzia gracilis*, *Spiræa*, well-flowered spikes of a bright cerise *Epacris*, and fronds of *Adiantum cuneatum*. In the other pair the same flowers were employed, with the addition of some blooms of a bright blue *Ciue-raria*, of a variety which retains its blue colour by gaslight. These little vases were arranged round a small but well shaped plant of *Adiantum cuneatum*, and had a very pleasing effect. It can hardly be imagined how a few little flowers and the trouble of arranging them will brighten and give a nice refined look to a dinner-table or drawing-room, that far more costly things will fail to do. But this is a fact, a few simple flowers, if nicely arranged, often have quite as good an effect as more expensive kinds.

ORNAMENTAL GRASSES.

BY JOHN WALSH.



the inflorescence of some of the most beautiful grasses is of so much value for intermixing with ferns and flowers employed in dinner-table decorations, and also extremely useful for drying for winter bouquets, many ladies may perhaps like to obtain further information respecting them. I have accordingly prepared a few notes upon the subject, from which may be gathered the names of the best kinds for the purposes indicated, and the most simple manner of cultivating them. It is possible to overdo the table decorations with grasses, and at all the public exhibitions examples are presented in

which the flowers are almost hidden by them, and the matter is made worse by the use of the inflorescence of the coarser kinds that are found in abundance by the hedgerows and in waste places. Some of the wild grasses are very pretty, and may be employed in large stands with advantage, but few indeed are those which equal in beauty and elegance the ornamental kinds adapted for garden culture.

For some years past a collection comprising upwards of fifty of the most distinct kinds have been grown in our garden, and from these I have selected the under-mentioned as being especially valuable:—

Agrostis elegans and *A. nebulosa* are both exquisitely beautiful, the inflorescence when judiciously mixed with flowers has the appearance of a light cloud hanging over them. The Quaking Grasses, *Briza maxima* and *B. gracilis*, are both remarkable for distinctness and beauty. *Chloris cuculata* and *C. elegans* are of especial value for winter bouquets. *Eleusine coracana* and *E. indica* are very pretty when growing in the border, and the flower-spikes are effective in decorations, as also are some of the *Festucas*, more especially *F. pectinella*, *F. rigida*, and *F. viridis*. *Hordeum jubatum* is well worth growing for its distinctness, but it is less beautiful than the others mentioned. The Hare's-tail Grass, *Lagurus ovatus*, is so elegant that it cannot well be dispensed with. The upright spikes of *Panicum capillare* are too rigid for table decoration, but carefully dried they are useful for winter bouquets. *Pennisetum fasciculatum*, *P. setosum*, *Stipa elegantissima*, *S. intricata*, *S. pennata*, and *Uniola latifolia*, are all exceedingly pretty. As the whole of the foregoing may be purchased at the rate of threepence per packet, all that are mentioned may be obtained for a trifle over five shillings.

Ornamental grasses may be raised in pots and transplanted, but as they succeed quite as well, and in some instances better, when sown in the border where they are to remain, it is quite unnecessary to incur the labour of sowing in pots. It is preferable to grow the grasses in a border by themselves, but as they do very well sown in clumps in borders filled with flowering plants, the cultivator can grow them in the most convenient position available. We devote a border to them, and sow in rows two feet apart. The seed is sown rather thinly early in April, and covered lightly with fine soil. The plants are thinned if they come up too thickly in any part of the row, to allow them a moderate space for their development. In sowing in clumps it is preferable to mark out a circle two feet in diameter, and scatter the seed thinly, and cover it in the same manner as when sown in rows.

When required for winter bouquets, the flower-spikes must be gathered just as they are approaching maturity. If gathered too soon, they will wither, and on the other hand when left too long the seeds fall out and the spikes are therefore worthless. With the aid of Judson's dyes, they can be dyed any desired colour, but this must not be done until a short time before they are made up into bouquets, so as to insure the colours being as bright as possible during the winter season.

SEEDLING GLADIOLI.



TO raise gladioli from seed is just as easy a matter as growing seeding crocuses; and the simplest mode that ever was known to answer for crocuses would answer for gladioli also. The subject is important, yet the gist of the story may be told in a word. Sow your gladiolus seed in spring as you would sow hardy annuals; take up the bulbs in autumn, plant them out the next spring, and in the ensuing summer most of them will flower. At the second great exhibition at Manchester, in the year 1867, there were several collections of named gladioli, which it fell to the lot of Mr. William Dean and myself to judge. When we had dealt with these named varieties to the best of our ability, we turned round to make a general survey of the show, and were astonished to find an immense group of gladioli in the centre of the fruit table, with not a single label on them to afford a clue to their names. They were of all colours; generally speaking a fine type of form and substance prevailed, such as we should term a first-rate strain; and there was not a group of any kind that gave us more delight. We began inquiring with all the feverish haste of enthusiasts who had made a discovery, and soon found that these were samples of seedling gladioli, which Mr. B. S. Williams, of Holloway, was prepared to offer by the thousand. So we soon button-holed Mr. Williams, and put him in the confessional box to know where these came from, the price per thousand, and the average quality taking them all through. To the first question he replied that they were grown for him by an expert hybridizer; to the second question he mildly ejaculated twenty pounds per thousand; to the third question, the only one of real importance, he said they were as good all through as the examples then before us; that, in fact, they were cut from the plantation at random, they were not picked with fastidious care; therefore, whoever purchased and grew them might expect such splendid spikes as were then presented. If they could not be grown from seed as easily as crocuses, it would be impossible to sell flowering bulbs of the finest quality at twenty pounds per thousand.

I might have forgotten all about seedling gladioli except for the reminder of my friend, Mr. Headly, of Stapleford, who invited me to see his plantation in bloom, accompanying the invitation with a box full of samples of such splendid characters, that to refuse the invitation would have been to scorn kindness, turn a deaf ear to truth, and shut one's eyes against beauty. So in due time I was led by my excellent friend through alleys of gladioli, through a labyrinth of the most various and splendid colours so solidly massed that air and earth appeared equally rich in splendid painting. All these gladioli were growing in the common soil of the place, which is a fertile sandy loam, assisted with liberal dressings of manure. The average height of the spikes might be four feet, the leaves were broad and plentiful, the spikes massive with stems like green walking-sticks, and flowers of great size, substance, and splendour of colour. Mr.

Headly has been engaged some years in raising his present stock. When he began he obtained the best named varieties in the market; but he soon began to think them not good enough, and, with the zeal and skill that are peculiarly his, he set about improving the type and enlarging the range of colours. It may be said of these, as has been said of the Stapleford tulips, that there is scarcely to be found their match, and as Mr. Headly is not a trader, but spends his money freely in gratifying his floral tastes, this eulogy can have no other effect than that of stimulating many amateurs to enter into the same delightful pursuit. Mr. Headly's gladioli have been grown from seed by means no more complicated or costly than are required to grow crocuses. He sows the seed in April in pans and boxes of light earth, and some he sows in drills in the open ground. The pans and boxes are employed only for a few of the very extra choice savings, from which he expects flowers above the average of his own splendid strain; but, as to the well-doing of the seedlings so treated, it cannot surely be said that they are in the end in any degree more thrifty than those dealt with on the rough and ready system. In the books—that is to say, in some books—you will find very complicated directions; and it will appear at last that to raise seedling gladioli is as difficult as learning to talk Russian, which no Englishman can accomplish until he can command himself perfectly while coughing, sneezing, and choking with a husk of barley in the throat.

One common error, which shows that the authors of some books have not worked in the garden so much as they have worked at their desks, is the direction to start these seeds in heat. Far better is it that they never know of artificial heat at all. A frame or cold pit is the proper place for the seed boxes, and if they are left out of doors to rough it through sun and shower, the seeds will germinate as well as under cover, and in due time both sowings will spear through the soil like grass, and show the beginning of the floral triumph that is to crown the work. The weeding and the harvesting, the keeping and the next year's planting, are matters of course. It is only needful to say that the majority of seedling bulbs flower the second year, and the few that remain over are sure to flower the third year, and that some of the very best are the last to flower; so the impatient cultivator must expect to be rebuked before he has finally done with a batch of seedlings. The question arises, how are you to obtain your seeds? Begin by purchasing all the best named varieties, taking the widest range possible as regards colour, and in every case giving preference to varieties of the finest form and habit. If you leave them to themselves you will get some seed, and may therefrom obtain something novel; but it is a miserable risk to leave them to seed spontaneously. You must go about all through the flowering season, crossing them all sorts of ways, crossing the most opposite colours, and always putting the pollen of the most decisive and brilliant colours upon flowers of the largest size and finest form. When the flowers begin to expand, provide yourself with two sorts of wool thread, say red and white. Select your mothers, and tie upon their stems, as you please, red or white worsted; select your fathers, and tie upon them red or white worsted. If you like ex-

treme simplicity, be content with ties of bast, and choose your pollen and seed parents without rule, taking your risk about results, and giving up all hope of tracing pedigrees. It may be remembered, however, for the general information of all raisers of seedling Glad-ioli, that, in common with many other subjects, they are rarely self-fertilized by their own pollen. As remarked above, if you leave them alone you will get some seed ; but I will just tell you beforehand, it will be precious little. You must fertilize the flowers artificially, and in so doing it is not of any consequence at all to remove the stamens for the seed-bearing parents. Make your choice well, and touch the selected seed bearers with the selected pollen when it is dry and powdery, when the air is still and the sun is shining, and very shortly the seed-pods will swell and seed will be produced in abundance.

S. H.

INDOOR GARDENING WITHOUT APPLIANCES.

BY MISS I. L. HOPE JOHNSTONE, OF MOFFAT.



INDING myself again in a part of the Continent where, owing to the usual severity of the climate in winter, all sitting-rooms must be closely shut, and the air in them consequently becoming very hot and dry, I thought it a good opportunity for making another attempt at invalid gardening without appliances. I again commenced with the brown basin mentioned in a former paper. For those who may not have read it, it may, perhaps, be as well here to explain that it is just the size of a common wash-hand basin, and of the rich deep chocolate brown ware so much employed on the Continent for cooking purposes.

I filled this basin with good-sized lumps of charcoal, some stones, and good leaf-loam, to which I had previously added a little grit, not having any silver-sand by me at the time. The advantage of the stones I am not quite sure about ; many plants like them, as they retain the heat a long time, besides giving a good hold for the roots : but I have since had a doubt in my mind if perhaps charcoal alone would not answer the purpose better.* The change might be worth a trial, as a good deal of weight might thus be saved, which is always an advantage in dealing with flower-stands and tables. This done, and the mould and charcoal settled, a little bushy Ivy, some dwarf reedy grass (*Oxycoccus palustris*†), a few plants of wild Ribbon grass and Moneywort were planted to make an edge. Then came planted at intervals inside these early Van Thol Tulips. Then inside these again, Rex Rubrorum Tulips and Hyacinths, with a fine large bulb of Narcissus in the centre of all. So far all went well. Now I stood the basin in the centre of a flower-stand, lent me for the purpose by a friend. All round the edge of the stand I placed small phials (large mouthed are best) containing a little

* We think it would.—Ed.

† *Oxycoccus palustris* is the common cranberry.—Ed.

charcoal and some water for preserving single flowers or stems, and in between these again were saucers for plants in pots. This also promised well, but now I made my grand mistake. I obtained a long, graceful, feathery moss (*Hypnum nitens*) I had admired in the woods, and *thought* I had dried it, but to my dismay discovered it to be teeming with animal life. I made the discovery only when the inside of nearly all the bulbs had been eaten away; in most cases the shoot had been pierced at the shoulder, and the flower-bud neatly eaten out. It was truly a heartrending spectacle, as may easily be imagined. However, as it was too late in the season to replace them in kind, there was nothing for it but to have recourse to the woods, and fill the spaces as well as circumstances will allow by hardy subjects, hoping for better times rather later in the year.

Now I do not think all this would have happened had I chosen the close short moss (*Hypnum myosurcides*) which is found growing in damp places and about trees, and is the kind, I think, always used by gardeners for placing round pots for indoor decoration, I suppose for this very reason, viz., its freedom from vermin. There was a kind of moss which resembled this hypnum very closely in mode of growth, in the woods here last autumn; it was growing in an open space at the foot of some trees that I fancy must have been beeches, but am not sure, having only noticed the splendid effect in the sunshine of the rich tones of bronzy orange, yellow and green, that formed the foreground for their cool grey stems. Verily, it was a sight for a painter to admire, and despair of reproducing. Some of this moss was brought to me afterwards, and it lasted a long time in very fair condition and colour, and was quite free from insects.

But the object of recounting this sad tale of disaster is to express the hope that one of your many readers may take the subject up, and perhaps give amateurs a little practical advice about my next difficulty; viz., *dust*. In spite of every care, my plants are white and dry with it. This is partly accounted for by the turf and wood consumed in the stoves, and the small draught obtainable in a room with double windows and no chimney. I know the ordinary course of proceeding in such a case, and have practised it when the plants declined to live any longer under present circumstances. But I am supposing, as in the paper above referred to, the case of an invalid who has no spare money for the renewal of spoilt flowers, and who may find herself shut up all the winter in one small room, not daring to go to an open window, far less make a splash on a balcony two or three times a week. Covering the plants with a damp cloth at night answers, I know, pretty well; if they are not too high, or in flower, but it is troublesome; water is not always at hand: some rheumatic patients may not even touch damp things, and, in fact, very few persons care to do it. "They do not see their way."

Whilst pondering over this phase of the question, I came upon a receipt in "Enquire Within," which seemed to me to start an idea likely to lead to practical results. It runs as follows:—"Maps and charts may be effectually varnished by brushing a very delicate

coating of gutta percha solution over their surface. It is perfectly transparent, and is said to improve the appearance of pictures. By coating both sides of important documents, they can be kept waterproof and preserved perfectly."—Page 83, No. 325. At p. 308, tarlatan brushed over with boiled oil is said to keep out dust. Why not make a sort of dome the size of the flower-stand, and about three inches higher than the plants, like the skeleton of a dish cover, and strain tarlatan or the parchment-like foreign post paper—I think called "vellum made"—over it, and cover all inside and out with a slight glaze of gutta percha? There could be no great difficulty in doing it, and the expense must be a mere trifle, as it would last a long time. Before covering, a handle might be made at the top, of cord, overcast button-hole fashion, to make it firm.

I fancy something of this kind might be made to answer; as also for newly-planted things out of doors. Canvas, if it can be protected from damp, will last much longer. Perhaps some of your readers might be induced to take up the idea, and give us the advantage of experience? This is just the time flower-stands and baskets of this kind could be so easily established in large towns, primroses, daisies, and violets being plentiful and cheap.

Before I close this, may I be allowed to harp again—just a little—on the merits of the Goethe plant as a room decoration and everyday friend? I have now a good-tempered little dear that has struggled bravely on all this winter in a thumb pot and bad soil, having lived a life of great privation for some months. It was bruised and broken off last autumn by the cat, then half drowned for some weeks in water, where it was neglected till within an inch of its little life, then stuffed into a bad soil in a "thumb-pot," which it hates; since which time it has once or twice been nearly baked to death on the stove; and now, in spite of everything, though thick and white with dust, it is struggling out a fair little leaf, and has the crisp sturdy bearing of a plant that means to thrive in the world. An oxlip brought in to fill up one of the spaces left vacant by some tulips, though paid far more attention, took to the sulks long ago, and finally jerked off its flower-beds, and went out on strike. These neighbours remind me of the nursery rhyme:—

"Coo, coo-o-o, says the Dove.
What shall I do
To maintain my two-o?
Thwit, Thwit, says the Wren,
I've got *ten*,
And I'm bringing them up like gentlemen."

PROFESSOR BENTLEY delivered a lecture on the properties and uses of the *Eucalyptus globulus* and other species, in the Museum in the gardens of the Royal Botanic Society, Regent's Park, on the 14th ult. For the information of those who are desirous of becoming acquainted with this tree, which is said to have the virtue of purifying the air of miasmatic districts, we take this opportunity of saying that specimens may be seen in the conservatory of the Royal Botanic Society, and in the conservatory of the Royal Horticultural Society, at South Kensington.

CULTIVATION OF COCKSCOMBS.

BY THOMAS TRUSSLER, EDMONTON, N.



THE cultivation of cockscombs sufficiently good for the embellishment of the conservatory during the autumn is in reality very simple, and all the details can be described in a very few words. To grow them for exhibition is quite another matter, for a more elaborate system is required for the production of large specimens than is necessary when the plants are intended simply for home decoration.

Seed saved from a good strain is a *sine qua non*, for the most skilful cultivator will fail in producing good combs if the seed is obtained from an inferior strain. When the seed is procured, sow in a shallow pan, or in a flower-pot, and place in a cucumber frame, or wherever it can have the assistance of a brisk heat, for it does not germinate readily in a low temperature. The soil must be kept in a nice moist condition, and the plants potted off separately into three-inch pots when between one and two inches in height. Replace them in the pit, and stand the pots close together, and allow them to remain until the combs can be distinctly seen. At this stage shift them into six-inch pots, and place them where they can be kept rather close, and at the same time be near the glass. It will be an advantage to them if the pots are placed upon a mild hotbed, such as a bed of leaves, or refuse hops, but it is not needful to prepare it specially for them. The compost in which they succeed most satisfactorily is prepared by well incorporating together three parts of mellow turfy loam and one part each of leaf-mould, and a sprinkle of silver-sand.

When newly-potted-off, they will require an occasional sprinkle overhead, but when well established they should be syringed once a day if the weather is moderately bright, and this is best done in the afternoon, when the frame is closed. In hot summer weather they may be syringed lightly morning and evening. They must not be saturated with water, but moderate syringings will be found most beneficial in keeping the red spider away from the foliage, to which this pest is decidedly partial. The soil also must be maintained in a moderately moist condition, and as soon as the six-inch pots in which they are to remain are well filled with roots, liquid manure may be applied twice a-week until the combs are fully developed. The most essential point is not to keep them in the small pots until the combs can be seen, and to have them close to the glass for the purpose of keeping them dwarf, for leggy plants are most unsightly in appearance, as compared with those having stems only a few inches in length.

THE POTATO PRIZES offered by Messrs. B. K. Bliss and Son last year, and referred to in the FLORAL WORLD for March last, exercised such a healthy influence on the cultivation of the potato, that the same firm has determined to offer this year prizes for the same potatoes, amounting in the aggregate to 1500 dollars, and the area of competition has been extended, so as to enable cultivators on this side of the Atlantic to compete.



FUCHSIA, MRS. H. CANNELL.

FUCHSIA, MRS. H. CANNELL.



HIS splendid fuchsia, now in course of distribution, may fairly be considered one of the most meritorious of florists' flowers introduced this season, and the very finest fuchsia in its class. It belongs to the class of double white corolla flowers, and it surpasses all yet in commerce in the larger size, and more perfect form of its flowers, and its free branching habit. The flowers, as shown in the illustration, are large and of splendid form, the broad leathery bright red sepals being beautifully reflexed, and the white corolla, full, of great depth and perfect form. Its excellent habit is one of its principal recommendations, for with one or two exceptions, the habit of the varieties in the same class is such as to render it most difficult to produce a handsome, well-flowered specimen. It is, therefore, exceedingly well adapted for exhibition and general decoration. The illustration is taken from a plant grown in the nursery of Mr. H. Cannell, Station Road, Woolwich, who holds the stock, and who has moreover the largest and most complete collection of fuchsias in the country.

THE FRENCH BREAKFAST RADISH.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



THE French breakfast radish, so largely grown for the Paris markets, is as yet but little known in this country although it is much the best radish for the table and salad bowl yet introduced to cultivation. It is especially valuable in all cases where it is necessary to send the radishes to table in a very small state. The bulbs are oval in shape, and can be allowed to attain a usable size without appearing too large, and when they are about half grown they have a very elegant appearance, quite surpassing the long and turnip-rooted varieties. They also quite surpass them in delicacy of flavour.

The French breakfast radish may be had in the same colours as the turnip-rooted, namely, scarlet, white, and scarlet-tipped white. The last-mentioned is the prettiest on the table, for the lower portion of the bright red olive-shaped bulb is pure white, and a very pretty contrast is the result.

The cultivation of this radish does not differ in any way from the long and turnip-rooted sorts. It requires a moderately rich and well pulverised soil, and for the earliest crop a warm border. A border at the foot of a south wall is the most suitable position for the earliest sowing out of doors; and for keeping the frost out of the beds sown very early, a covering of straw is most useful, but it is of the highest importance to remove it before the young plants are drawn. The crops sown after the early part of April will require no such protection, but proper precautions must be taken to keep the birds off, for the sparrows and the finches are very partial to the seed, and the young and tender plants also just as they are pushing

through the soil. For the later supplies a cool, shady position must be selected, for when grown in a hot and dry situation during the summer season, radishes are usually stringy and very pungent. The soil cannot well be too rich, provided the manure with which it is dressed is well decomposed. Liberal dressings of powdery leaf-mould will be also useful in promoting a rapid and succulent growth.

They are most delicate in flavour when of the size of a filbert, but they may be used when full grown, for they retain their mild succulent flavour until the last.

BLUE FLOWERED GERANIUMS.

BY GEORGE GORDON.



ALTHOUGH we have no geraniums with flowers of the same hue as the well-known *Delphinium formosum*, some of the zonal varieties introduced within the last few years produce flowers of such a decided blue tone that they constitute a distinct and most beautiful class of themselves. These varieties are of immense value for the conservatory, for they are remarkably attractive, and present a pleasing contrast with the scarlet, pink, and white varieties. The most important of these varieties have been raised by Dr. Denny, who, as was stated in the *FLORAL WORLD* for December last, has devoted for several years past a considerable amount of attention to the improvement of the zonals. That beautiful variety, *Imogen*, which was figured in the number referred to, is the nearest approach to blue we have; but it is not yet in commerce, and we must therefore wait for it. The best of those which may at once be procured is *Nelson*, and this is so thoroughly beautiful that it should form part of the smallest collection; the habit of the plant is exceedingly good, and the flowers are of fine form, splendid quality, and exceedingly rich, the colour a lovely shade of blue-tinted magenta; the petals of the flowers possess the important property of being more persistent than those of many other varieties belonging to this section, which adds very considerably to its value. *Ianthe*, one of the first of the blue-tinted varieties selected from Dr. Denny's seed-bed, still remains one of the best, for the flowers are of good shape, rich in colour, and produced in the most profuse manner. These varieties raised by Dr. Denny are sent out by Mr. Copelin, Tyssen Street Nursery, Hackney.

Several very beautiful varieties belonging to this section have been distributed by Mr. Cannell, of Woolwich. One of the first of these was *Madame Mezard* which, although very beautiful, is surpassed by those already mentioned. *Heart's-ease* is a dwarf-growing variety, producing a profusion of small trusses of flowers of the most perfect shape; the colour is a deep rich crimson suffused with a lovely bluish purple shade. *Mrs. Blizzard* differs materially from all the other blue-tinted flowers, for the colour is a distinct shade of bluish pink, quite surpassing *Blue Bell* and others of the same character. *Mr. Chandler* may be considered one of the best of the class, the flowers are of good quality, of comparatively large

size and freely produced. *Peabody* and *Purple Prince*, two varieties also sent out by Mr. Cannell, are both exceedingly good and in every way desirable. The lovely blue tint of the flowers is brought out more prominently during the autumn season, when they are of special value for decorative purposes and supplying cut flowers for vases indoors; to have them in perfection from the end of September to the end of November, when there are but few flowers to brighten up the conservatory, is not by any means difficult. Autumn-struck plants of moderate strength should be selected in the second or third week in May and shifted into five-inch pots, and placed upon a bed of coal-ashes in an open position out of doors; by the end of July they will have filled the pots nicely with roots, and should then be shifted into others one or two sizes larger; the best course is to put the strongest plants into eight-inch and the others into six-inch pots; let them be well drained, and use a compost consisting of turfy loam, leaf-mould, and sand; frequent stoppings will be necessary, the last stopping being done a fortnight or so before the final shift. The flower-buds must be removed until the second or third week in September, for if the plants are allowed to exhaust themselves with flowering in the summer they will not bloom satisfactorily during the autumn; they must be liberally supplied with water when growing freely, but proper caution must be exercised when they are newly potted, and, as autumn approaches, to guard against their being overwatered. Remove them indoors after the second week in September, and maintain a temperature of 50°, and a rather dry atmosphere; towards the end of the summer keep a sharp look out for caterpillars, for it is then they are most troublesome; if any of the leaves are eaten, examine without delay the underside of all the leaves on the plant until the depredator has been caught and destroyed.

Those to whom the cost of the plants is a matter of considerable consequence may do very well by purchasing rooted cuttings, which are very much cheaper than the established plants, are quite as suitable for the present purpose if procured early; moreover, as they can be sent by post for a few pence per dozen, the cost of carriage, which is frequently more than the value of the plants, is practically saved. There are only a few nurserymen who supply rooted cuttings in the manner here described, and one of the most important of these is Mr. Cannell, who sends out immense quantities of plants in this way every year, many of them going to America, Australia, and other distant parts of the world.

COLEUS, THE SHAH.



ONE of the most beautiful coleus in cultivation, and remarkable for its exceedingly rich and distinct style of colouring. The leaves, instead of being veined or margined, as in the case of those with which we are well acquainted, have one half of the blade deep crimson, and the other bright golden yellow, in the manner shown

in the accompanying illustration. *Lady Burrell* and *Tryoni*, which were introduced two years ago, were of the same character, but the



COLEUS, THE SHAH.

yellow did not cover so large a portion of the leaves, and was less constant, for it frequently disappeared altogether during the winter

and did not appear again until the plants had attained a considerable size and become pot-bound. In the case of *The Shah*, the leaves retain their peculiarity of marking throughout the season, and when the plants are in a small state and in full growth, neatly grown plants have a very beautiful appearance in the conservatory. It is one of the most remarkable introductions of the year, and as it is very cheap we can strongly recommend it as well deserving the attention of our readers. The following are the best varieties of coleus in cultivation, namely, *The Shah*, *Golden Gem*, *Brilliant*, *Favourite*, *Crown Jewel*, *Verschaffelti Improved*.

MULTIPLICATION OF TRICOLOR GERANIUMS.



THE tricolor mania has not yet reached its height, so the trade are safe with their enormous stocks, and amateurs are rowing with the stream in all their labours of raising and multiplying. Dr. Denny's formulæ for breeding, and Mr. Grieve's capital book on the treatment of tricolors in general, will serve as stroke and helm to guide the boat to its proper destination. But the subject is not yet exhausted; like the conjuror's bottle, we may get a wee drop of something good out of it after it has gone all round; and this time I shall say something about propagating, which the devotees may read, mark, learn, and inwardly digest, to the possible increase of their tricolored favourites. We use the term "tricolor" conventionally; for all scientific purposes in this connection it is abolished. It is useful because universally understood—a common merit, by the way, of inexact language. I have just been reading an account of the English oak-galls (*Cynips Kollari*), and the author has informed me that these galls are "monotholasmous," which, after a brief but sharp mental agony, resulting in the resurrection in my mind of some ancient scraps of philology that have long been forgotten, I discovered to mean that in each gall there is only one insect. If I find a man can spell and pronounce and define offhand the word "pusillanimity," I take off my hat and promise him the first promotion to a high scholastic sinecure that falls in my way, such as Professor of Jaw-breaking in the University of Nonsense. For scientific purposes we have done with the word "tricolor," but it is as good as ever for the use of continental nationalities, whether represented by our organ-grinders, or the nobility of Leicester Square. For the present purpose it is as good as ever, and we shall go on defying the proprieties of terminology and all other proprieties that are in the way of a direct blow at the thing to be struck.

The subject which concerns ten thousand amateurs much more than the name or the origin of a tricolor, is the multiplication of it *ad lib.* and *ad inf.* The practice that prevails is bad, for it is founded on the supposition that these plants may be treated as their dark-zoned and green-leaved brethren, the "cabbages" of the class; but as they want *more time*, it is better to begin in spring than in autumn.

April.

If you intend to buy, *buy now*. You cannot see the colours to advantage in spring, but mayhap you know what you want, and if in the dark on a point the "Garden Oracle" may help you. This is, say the first week in April; the plants are growing, we have the prospect of six months' sunshine, suitable for building up the constitution of a tricolor. Put your plants in the sunniest house you have, give plenty of air, and if they will not furnish cuttings instantler, you will not have to wait long.

Now as to the way. I will tell you in a few words the very best way. Make a bed close to the glass in a sunny house. A large shallow wooden box will do. Far better is a bed of earth within a brick wall, such as in some houses pot-plants are placed on, with pebbles or coal-ashes for a surfacing. Better to make a bed rather than trust to pots and pans. It must be six inches deep, and consist of equal parts quite rotten cocoa-nut fibre and sharp sand well mixed together. In this mixture the tricolors will root in a way to indicate that to them it is a discovery and a delight. There is to be no bottom-heat, but a little husbanding of sun-heat may be prudent, especially until we get a little way into May. Get rid of all old notions about propagating, and go to work just as I advise. I well know what Seneca says, *Dediscit animus sero quod didicit diu*; but it must be done if you want tricolors. When this bed has been watered, and had a little time to settle, begin to cut wherever you can take a two-inch length without spoiling a plant. There are two ways to make cuttings for this bed. The rather softish tops of shoots of an inch long or so must not be cut smaller; plant them firmly in the bed, and they will soon be plants. Stout ripe pieces may be cut into as many parts as there are leaves; that is to say, a bit of wood and one leaf are enough to make a plant. Never remove a leaf if you can fix your cutting firmly without burying a leaf or a leaf-stalk; rather than do this take a leaf off; but I think he would be a poor bungler who would ever have to take off a leaf, unless it happened to be a dead leaf, and that is better off than on. It is perhaps, not needless information to say, that a leaf taken off cannot be put on again; it prepares us to understand the maxim of Publius Syrus, *Deliberandum est diu, quod statuendum semel*. I say nothing about what you are to do with them when rooted, for that is another subject. But let us shift the scene to the opening of June, and then let us begin again.

It is a matter of fact that any and every tricolor can be as well struck in a sunny border as a Tom Thumb, only with this difference, that they want *more time*. Begin, therefore, on the 1st of June, and if the weather is cold, put mats or flower-pots over them at night; but not in the common border, mind, for that may consist of clay, or putty, or pudding; *make a border for them*, a sunny border under a wall; put on a foot depth of a mixture of equal parts sand, leaf-mould, and cocoa-nut fibre; no harm if one part of very old hotbed manure be added. A little turfy loam—no harm if mellow and yellow. Slope it up to the wall above the level, and there dib away as fast as you can get bits to dib; they will be all plants in August fit for potting to go through the winter.

It is a long time since grafting was proposed in these pages, but very few have profited by the recommendation. I am quite satisfied about the grafting; but if people will not do it, the loss is not mine, but theirs. Now I propose *budding*,

“And what do you say to that, my cat?”

In about five years, perhaps, with the aid of fifty articles and a hundred demonstrations, budding may find favour; for the present, no doubt, I am thrashing the wind. Never mind—born to thrash, so thrash away. How do we bud them, you ask, perhaps? Just in the same way as budding roses; the leaf is all removed, *and the leaf stalk is left*. Select a place on the stock where a variegated shoot would be in an advantageous position. Cut out your bud, and do not peel it. Cut it as a miniature graft—a little wedge; make a notch in the stock to receive it, insert it, press it close, and make it fit exactly, and just pass one thin strip of soft bast above and below the stalk, and tie tenderly. A moist propagating-house or pit is the place in which to promote the union, which will take place instantaneously. As the bud grows remove the wild growth, or merely stop it back, so as by degrees to direct into the graft the whole of the sap. If for no other purpose, this is worth adopting to make standards, which hitherto have been curiosities, but which the spirit of the time demands shall become common; that is to say, common in the sense of being understood by all leaders of taste and practice. As to the possible breadth of range in choice of stocks and grafts, I have little to say. Seedling zonal stocks will take buds and grafts of any and every zonal variety, and that is all I know about it. I have never tried a zonal on a large-flowering variety (*P. speciosa*), and I leave it to such as have time and taste for experiments, and who also believe them to be worth attempting, which I do not, except merely that we never know what may be the value and use of a new fact.

S. H.

THE GARDEN GUIDE FOR APRIL.

Next came fresh Aprill full of lusty hed,
And wanton as a kid whose horne new buds :
Upon a Bull he rode, the same which led
Europa floting through th' Argolick fluds ;
His hornes were gilden all with golden studs,
And garnished with garlonds goodly dight
Of all the fairest flowres and freshest buds
Which th' earth brings forth ; and wet he seem'd in sight
With waves, through which he waded for his Love's delight.

SPENSER.



DURING this month there will be no lack of flowers, for all the early-flowering plants are now coming freely into bloom. In the garden we shall have in abundance aubrietias, alyssums, candytufts, alpine, and other wall-flowers, American cowslips, gentians, primroses, forget-me-nots, catchflies, hyacinths, tulips, violas, and the early-flowering pansies.

April.

The garden-work of April includes the planting of evergreens. The potting and hardening off of tender plants intended for the summer display in the flower-garden, the pricking-off of tender annuals, and the sowing of hardy annuals in the open border. The pricking off and planting out of vegetable crops raised under glass, and the sowing of the main crops of vegetables in gardens in which, owing to the state of the weather it could not be done last month, must also receive instant attention. The general shifting of stove and greenhouse plants, and the shifting and top-dressing of orchidaceous plants, are amongst the important matters requiring attention indoors.

FLOWER GARDEN.—The present month is most favourable for sowing seeds of biennials and perennials, and also annuals for late blooming; thin out those already up, and transplant. Finish dividing and planting herbaceous plants. Prepare the flower bed for the summer bedders, and plant hardy things at once. Walks should be thoroughly rolled to make them firm for the summer; and grass plots dressed, to give everything an air of neatness and order.

GREENHOUSE.—This structure will now be gay with *Acacias*, *Azaleas*, *Apelexis*, *Blandfordias*, *Chorozemas*, *Cinerarias*, *Eriostemons*, *Rhododendrons*, and *Calceolarias*. Give plenty of air to prevent the plants drawing, and shade during the bright sunshine, to enable the flowers to retain freshness as long as possible. Plants of all kinds will now require increased supplies of water; those in flower must not be allowed to suffer for the want of this element, or the flowers will soon drop. Sow *primulas* and *cinerarias* for early bloom, and place the seed pans in a shady corner until the plants are up. *Cytisus* should be pruned into shape immediately they go out of flower, and directly they break, repotted. Autumn-struck and old plants of *fuchsias* will require shifting into larger pots. Keep the whole of the plants in a brisk growing temperature, well syringed and pinched, as required. Remove *cinerarias* going out of bloom to a cold frame, if offsets are required. *Verbenas* and *petunias* struck now, and grown on, will be useful for flowering in the autumn. Pot hard-wooded plants that require a shift, and harden off those that have finished their growth, preparatory to going out of doors for the summer.

STOVE.—*Clerodendrons*, *Ixoras*, *Rondeletias*, and a number of other stove plants, will now be coming freely into bloom, as also a large number of orchids. *Achimenes* and *gloxinias*, repot before they get pot-bound. Keep the former near the glass, to prevent them drawing. Continue to shift orchids that require repotting, and divide those the stock of which it is desired to increase. Maintain a thoroughly moist atmosphere by throwing plenty of water on the floor, but avoid syringing them for the present. Shut up early, and use as little fire-heat as possible. Train specimen plants of a climbing habit, such as *Stephanotis*, as fast as they make new growth, to prevent their getting out of form. All the plants that require a shift must have it at once, as better growth will be made in the fresh soil than that which is now worn out.

KITCHEN GARDEN.—Plant out cabbage, and lettuce, and cauliflower from the frames. Sow beet, broccoli, cabbage, cardoons, carrots, celeriac, celery for late crop, chicory, endive, parsnips, salsafy, scorzonera for main crops. Also sow lettuce, radishes, cress, mustard, spinach, turnips, peas, and other vegetables for successional crops. Plant out crops from the seed-beds when large enough. Keep the hoe at work amongst crops of all kinds. Earth up and stick peas, to prevent their getting blown about. Prepare trenches for celery, and put at least six inches of good rotten manure in the bottom, and just cover with soil. The spaces between the rows may be occupied with lettuces and radishes. Seakale for forcing can be raised in one season, if the small side-roots or “thongs” are now planted in rows in good rich soil. All salading, such as lettuce, endive, and radishes, must have rich soil after this season. Potatoes in heavy cold soils must now be planted. Protect early kinds now peeping through the ground by drawing a little soil over them.

FRUIT GARDEN.—Continue to protect peaches and nectarines; care, however, must be exercised, so that the young growth is not drawn weak and spindly through too thick a covering. If blinds of tiffany or canvas are used, roll them up during the day, but where branches of fir or fern are used, about half the quantity should now be taken off. Thin out apricots, and disbud; but proceed cautiously and gradually, so as not to produce too great a check. Lay long litter from the stable between the strawberry rows, which will serve the double purpose of strengthening the plants with the salts washed out of it, and at the same time keep the fruit clean. Remove all runners that are not wanted for layering.

FORCING.—Cucumbers and melons must be carefully handled just now. Shut up early in the day, and give the foliage a moderate syringing before doing so. See that the bed is a proper degree of moisture throughout its depth, and if it requires watering, use water at a temperature of 75° . Where the bottom-heat is supplied entirely by fire-heat, particular attention must be paid to this point in their culture. Pay frequent attention to stopping, training, and regulating the shoots. Fertilize the female flowers of the melon. The temperature of the various vineries must be gradually increased as the days lengthen, and the sun gains power. As the fruit of the figs begins to swell, increase the moisture and heat. Peaches and nectarines will now be making considerable progress. The night temperature should now range at about 60° or 65° , with a rise of ten degrees during the day. Disbud, tie in the roots, and thin the fruit, as may be necessary. The last operation must be performed with a sparing hand, as the stoning process is a critical time for these fruits to go through. Syringe twice a day, and keep the borders properly watered. Pines ripening off must have a rather dry atmosphere, and a temperature of 80° or 85° , with an extra five degrees by the aid of the sun. Those shifted recently must not have much water until the pots begin to get full of roots.

PITS AND FRAMES.—Auriculas will now require more water; shade from strong sunshine. Turn out the whole of the bedding-plants into cradles, where they can be protected with mats, if the

frames are required for other purposes; if not, draw off the lights, except during frosts. Herbs, tomatoes, vegetable marrows, etc., must receive full exposure to the external air, to enable them to go out sturdy and strong. Prepare the frames for growing summer cucumbers, melons, and chilies. Plants requiring to be grown on briskly should be shut up early, and have a skiff with the syringe before the lights are shut down for the night.

NEW BOOKS.



ONE of the most important books relating to plants that has been published for many a month past is the *Treasury of Botany*, in part prepared by the late Dr. Lindley, and completed and brought down to the present time by Mr. Thomas Moore, the well-known curator of the Chelsea Botanic Garden. The new and revised edition of this work, in two compact and beautifully-printed volumes, is as genuine a "treasury" as anything of the kind in our language, and in respect of fulness, comprehensiveness, accuracy, and convenience of arrangement it stands alone, for in plain truth there is no other such book in the market. The matter is arranged in dictionary form, and the entries include all known orders and all known genera, inclusive of cryptogamia; one proper consequence being that information desired is easily found, and the information is always copious enough for general purposes. Incidentally horticultural as well as botanical subjects obtain attention, and the plants known to commerce for their products, such as foods, spices, etc., etc., are treated with a view to furnish both trader and consumer with useful information. The work is illustrated with ornamental plates and explanatory woodcuts, and is in every way worthy of the respectable house of Longmans and Co.—*Dr. Hartwig's Polar World* is a fine addition to his handsome octavo series of works on physical geography and natural history. It presents in a most agreeable form an immense body of information on arctic and antarctic exploration and discovery, and recounts the histories of the races of men that inhabit the polar lands, as well as the animals and plants, the mountains, lakes, rivers, and scenic curiosities of those remote regions of the globe. For the family library we have no such books as Dr. Hartwig's.—The new illustrated paper, *The Pictorial World*, has made a grand beginning, and we wish it a great and continued success. A first-class picture newspaper, at half the price hitherto charged for such a work, is a bold venture that cannot fail to find an appreciative public. In spirit the paper is generous and broad, free from party politics, and its news so carefully selected, that it may safely be left on the table for the young people. Its pictures are, of course, its main attraction, and they are such as are required in a publication competing with two of the most successful ventures of modern times.—A new edition of the *Rose Book* is now at the service of the public. It has been in great part rewritten, in order

to include the various matters that have acquired importance in connection with rose-growing during the twelve years that have elapsed since the original was produced. The work has had so large a sale, and is still in such every-day request, that we felt bound to spare no trouble to render it, so far as we knew how, the best book of its class before the public. Whether we have succeeded or not is for others to judge, and, no doubt, the reviewers will scrutinize it closely, and speak without hesitation of its merits.

HORTICULTURAL AFFAIRS.



THE ANNIVERSARY FESTIVAL of the Gardeners' Benevolent Institution is fixed for Thursday, July 2, under the Presidency, as announced in our last issue, of Alfred de Rothschild, Esq. The great Rose Show at South Kensington will be held the day previous, and as several of the intending exhibitors have promised to send their plants and flowers to the London Tavern for the decoration of the tables and rooms, this festival is likely to be of more interest than usual.

MR. ALBERT MULLER, F.R.G.S., F.L.S., the well-known entomological writer, has been appointed Director of the Zoological Gardens of Basle.

MR. CHARLES TURNER, Royal Nurseries, Slough, had the honour of providing a grand display of flowering and fine foliage plants at the Windsor Station of the South-Western Railway, on the occasion of the visit of the Duke and Duchess of Edinburgh to Windsor Castle, and also a considerable proportion of the plants and flowers employed in the decoration of the reception-rooms in the Castle.

MR. HARRY VEITCH, of the firm of Messrs. J. Veitch and Sons, King's Road, Chelsea, had the honour of presenting to her Majesty, on the occasion of the arrival of the Duke and Duchess of Edinburgh at Windsor, two bouquets, one of them being intended for the Duchess of Edinburgh, to be presented by the Queen on her arrival. At the same time, a third bouquet was presented to the Princess of Wales, who was with the Queen.

THE CHISWICK TRIALS of flowers this year will embrace New Pelargoniums for bedding purposes; pink and rose-coloured Zonal Pelargoniums for pot-culture; Fuchsias as pot plants; Pentstemons; flowering Begonias; and bedding Violas and Pansies. Those who possess novelties they desire to have tested, as well as those who are willing to render aid in making the collection as complete as possible, are desired to send plants without delay to Mr. Barron, gardener-in-chief, Royal Horticultural Society's Gardens, Chiswick.

THE CERCLE LYONNAISE will hold a great Horticultural Exhibition on the 17th, 18th, 19th, and 20th of September next.

THE MIDLAND COUNTIES HORTICULTURAL EXHIBITION, to be held in the lower grounds, Birmingham, from July 7 to July 10, appears likely to be the most important gathering of the year. His Royal Highness Prince Arthur has signified his intention of becoming one of the patrons, and the schedule of prizes which has been recently issued is unusually liberal and comprehensive.

A HYACINTH, with no less than ten well-developed spikes, was exhibited at the Crystal Palace last month. The bulb producing this unusual number of spikes was one of a number of *Norma*, grown for the embellishment of the building by Mr. T. Williams, the able superintendent of the indoor garden department. The flowers amounted in the aggregate to 170, and had the appearance of a huge bouquet.

GREVILLEA ROSMARINIFOLIA.—This very handsome Protead, has proved quite hardy in the nursery of Messrs. J. Veitch and Sons, at Combe Wood, near Kingston-on-Thames. It was in bloom at the end of February, and its pretty red and yellow flowers had a most attractive appearance. Our readers may make note of this shrub as being specially adapted for "kind climates."

THE ROYAL BOTANIC GARDEN AT EDINBURGH was, we learn from the report recently issued, visited last year by 78,932 persons.

MESSRS. DOWNIE, LAIRD, AND LAING's exhibition of hyacinths, which opened in the Crystal Palace on the 21st ult., is, as usual, remarkably good, and it has

proved a great source of attraction to the visitors. It comprises a splendid display of hyacinths, tulips, narcissus, and forced shrubs. According to the present arrangements it will remain open until the 3rd instant.

AMERICAN SUNDEWS.—Mrs. Mary Treat publishes in the *American Naturalist* for December, 1873, a remarkable contribution to our knowledge of the sensitiveness of the leaves of the Sundew, her experiments being chiefly made on the large American species, *Drosera filiformis*, the leaves of which capture and kill moths and butterflies two inches across. Her observations are in accordance with those already recorded on English species, that the motion of the glands is excited only by organic substances, or if for a very short time by mineral substances, that the excitement passes off almost immediately. The most astonishing of her observations is, however, that when living flies are pinned at a distance of half an inch from the apex of the leaf, the leaf actually bends towards the insect until the glands reach it and suck its juices. The *American Naturalist* for January contains an account of Roth's observations on the irritability of the Sundew, made nearly a century ago.

TO CORRESPONDENTS.

CATERPILLARS ON GERANIUM LEAVES.—*J. Manchester.*—The only way to get rid of the caterpillars which do so much injury to the leaves of your geraniums, is to examine the underside of the leaves occasionally, and search for the caterpillars and destroy them when found. It is of necessity tedious work, but with a moderate amount of perseverance is sure to succeed. Any leaf showing signs of injury should be examined at once, for the marauder can generally be found underneath.

C. N. Luxmore.—The *Amateur's Greenhouse* will afford all the information that could be desired, on the cultivation of greenhouse and conservatory plants, and the *Amateur's Flower Garden* contains similar information on the cultivation of garden flowers and bedding plants, so that it is quite unnecessary to do as you suggest. The price of the first mentioned is six shillings, and of the latter five shillings.

WORMS IN LAWNS.—*J. M.*—The best preparation for destroying the worms is prepared as follows: Corrosive sublimate one ounce, common salt one tablespoonful, boiling water one pint, stir till dissolved. Pour this mixture into nine gallons of rain water, and with it water the lawn. The best time to use it is immediately after a shower, as the worms are then near the surface, and more quickly affected by the mixture. The corrosive sublimate is, as many of our readers are aware poisonous.

INTERIOR OF FERN-HOUSE.—*M. A. D., Northampton.*—Pieces of rock or broken bricks, formed into large rough lumps with the aid of cement and sand, and washed over with a solution of Portland cement, may be employed instead of the "burrs," and in precisely the same manner. If you cannot obtain stone or bricks, you will of necessity have to construct a wooden stage and grow the plants in pots.

CLEMATIS MONTANA.—*Gabrielle.*—This Clematis would do very well for training on the wall referred to, but we should prefer *Clematis Jackmanni* or one of the varieties of the same type, of which *Star of India* and *Rubro-violacea* may be mentioned; strong well-established plants, which may be procured for 2s. 6d., would flower this year. A clematis grown in a tub will last any number provided it is properly attended to and top-dressed or repotted annually. Clematis grown in pots may be planted out at any season of the year. Gymnogrammas, or as they are more generally termed, gold and silver ferns, cannot be recommended for closed cases. Adiantums will succeed admirably, and may be grown in pots.

CLIANTHUS DAMPIERI.—*W. A.*—The plants may be put in pots ten inches in diameter. Repot the plants at once and they will probably flower in the course of the summer. It will depend upon their size now and the progress they make when shifted.

NAMES OF PLANTS.—*X.*—No. 3, Bur Parsley, *Anthriscus vulgaris*; Hares'-ear Erysimum, *Erysimum orientale*; Willow Lettuce, *Lactuca saligna*.

ORNAMENTAL-LEAVED PLANTS FOR INDOOR APARTMENTS.—*Mrs. R. C., Tenby.*—The under-mentioned are most suitable for indoor apartments, as they can be kept in good health with but little difficulty:—*Aralia Sieboldi*, *Dracæna australis*,

D. congesta, *D. indivisa*, *Areca sapida*, *Chamærops Fortunei*, *C. humilis*, *Corypha australis*, *Latania borbonica*, *Rhapis flabelliformis*, *Seaforthia elegans*, *Thrinax tunicata*, the India-rubber tree, *Ficus elasticus*, and *Yucca aloifolia*. These are all of moderate growth, and will require repotting once a year only, and in some instances a shift every second or third year will suffice. They will all grow in a mixture of equal parts turfy loam and peat, and a small quantity of sand. Moderate supplies of water at the root will be required, but they must not be stood in shallow vessels containing water at any season of the year, for if they are so placed they will assuredly go wrong sooner or later. When the foliage becomes dusty, as will be frequently the case, either wash the leaves with a piece of sponge and clean water, or remove them from the room. Give them a thorough washing with the syringe, or by means of a water-can, to which a coarse rose has been affixed. In the winter the sponging will be the best way of keeping the foliage, and in the summer the syringing will be the most conducive to health, as the watering overhead will freshen them up in a wonderful manner.

WELLINGTONIA GIGANTEA.—*Louise*.—This magnificent coniferous tree is not very particular as to situation, provided it is not too bleak. It succeeds in almost all kinds of soil, but a deep, well-drained loam is the most suitable. It is preferable to plant young trees, because of the skill necessary to transplant those of large size successfully.

UNHEALTHY FERNS.—*Mrs. Joy*.—The ferns have been kept too wet, and in the case of the Pteris, too cold. The drainage appears to be imperfect, and the soil has become sour in consequence. The geraniums have unquestionably suffered from an excess of moisture.

G. T., Burton-on-Trent.—The stoves mentioned have been found to answer very well indeed for keeping the frost out of small structures. They are also managed without much difficulty.

WALNUT TREE.—*A. R., Brixton*.—Your walnut tree is evidently in a starving condition, for it ought by this time to have been eight or ten feet high, and well furnished with wood. The situation should be open, and the soil moderately rich. It is certainly not in a suitable place at present, and we would advise to transplant it in an open position in the garden where it will be fully exposed to the sun. This must be done at once, for the season is too far advanced for transplanting operations to admit of much delay. It is not very particular as to the character of the soil. The branches should not be pruned at present.

C. H. C.—You are quite right in your conjecture as to the identity of the plant. It grows wild on the sea-coast, but generally it is not plentiful. The roots may be taken up and cultivated in the garden.

SHADING FOR FERNS.—*G. M.*—Sufficient information is not afforded us, as to what kind of shading you require, whether a permanent blind to remain fixed all the summer, or one to roll up in dull weather; or something to smear the glass with? If you wish a blind, stout tiffany, the thickest you can get, is preferable. Make the blind the proper size, and stretch tightly over the roof, and fasten with small flat-headed nails. Smearing the glass costs, comparatively speaking, nothing, and is at the same time very little trouble. Mix some fresh lime with sufficient water to make it the consistency of thick whitewash, and add a little clay or yellow loam, and wash the outside of the glass with it exactly the same as you would whitewash an ordinary wall. If you find the shade is not sufficient from the first application, dress it over again. If the lime is fresh the rain will not wash it off, but you can remove it in the autumn with a moderate amount of labour by means of a scrubbing-brush. The other way that we can confidently recommend is simply painting the inside of the glass with a wash made of whiting and size, this is less trouble to wash off in the autumn; on that account we prefer it for houses that are not syringed or kept moist; but for houses that are kept moist the syringing will wash some of it off the glass and make the plants dirty. With these considerations, we can with confidence recommend both ways, for they are cheap, easily applied, and answer every purpose for which a permanent shading is required.

HYACINTHS DONE FLOWERING.—*W. W.*—Hyacinths require liberal treatment after they have done blooming. Make up a bed of light rich soil, turn the balls out of the pots without injury to the roots. Those in glasses carefully take out and plant, spreading the roots out without breaking them about, and encourage them to grow by giving plenty of water when necessary, and mulching the bed with half-

rotten dung. When the leaves begin to fade withhold the water, and as soon as they are completely withered take the bulbs up and lay them on their sides with a couple of inches of soil over them to ripen.

HOW TO RAISE ACHIMENES AND GLOXINIAS FROM SEED.—*A Young Gardener.*—Seed should only be saved from those kinds which are of first-class merit and present some distinctive features, either in a good habit of growth or the colour and shape of the flower; such should be crossed with other good varieties. Any time in March is a capital time for sowing the seeds, and as they are small they require little extra care. It is not of much consequence whether pans or pots are used, but the former are the handiest; therefore we will suppose pans are employed. They should have a good drainage, and the soil should consist of two parts peat, one part loam, and one part leaf-mould; chopped up and sifted, and the rough part put over the crocks, and the finer portion on the top. This should be made firm and level with the bottom of a flower-pot, a piece of board, or other contrivance, and then have a good watering; the seed may then be sown, and covered as lightly as possible. It is advisable to cover the pans with a piece of glass to keep the soil moist without frequent waterings, and to place the pan on a warm tank or other source of heat to start the seed. As they begin to come up, they admit air at first by just tilting the glass slightly with a piece of crock or wood, gradually increasing the amount of air admitted, until the young plants are strong enough to bear the removal of the glass altogether. Directly the seedlings are stont enough to handle, they should be pricked off into other pans, and as they become large enough, finally potted off into small pots.

SALVIAS AND JUSTICIAS.—*W. Wilson.*—As the Salvias will soon produce their bloom-spikes, they must not be shifted, but give plenty of liquid manure, or put a spoonful of genuine Peruvian guano on the surface of the mould every three days and wash it in with water. Shorten the shoots of *Justicia carnea* major to five or six inches in length, shake it out and repot in rich compost, plunge in bottom-heat, shift again as the plant advances, syringe frequently, and by the middle of July it should be a handsome specimen, with from fifteen to twenty fine heads of bloom. The tops now cut off if placed in bottom-heat—say, a cucumber frame at work—would soon make fine young plants.

SEEDLING GERANIUMS.—*W. K.*—To have them in bloom this year, sow in a brisk heat as early as possible. Prick them into small pots as soon as large enough to handle, and keep them in a warm place near the glass till the bedding-plants are removed from the house. Then shift to six-inch pots, and put them in the house near the glass. Give plenty of air all summer, and they will all bloom in August and September. This is a better way than sowing one season to flower the next, because it saves the trouble of keeping the seedlings all winter, which is a nuisance, seeing that a majority of them are sure to be worthless. By the quick method they are all proved before winter.

SEEDLING FERNS.—*Miss Williamson.*—Propagating ferns by spores is a very simple affair. Take some seedpans and fill them about half-full with rough pieces of crock, and then take some fibry peat and break it up roughly, and thoroughly incorporate it with an equal proportion of sphagnum moss; it is not imperatively necessary to use sphagnum, for the peat alone will suffice, but it is advisable to use it. After the peat and moss are properly prepared, fill the pans about two inches above the level of the rim and make it firm, but leave a rough surface, and then, after the soil is properly moistened, take the fronds of the kinds you wish to propagate and shake them over the pans, and gently draw your hand up the underneath side of the fronds to dislodge the spores. After this is done, cover with bell-glasses, and stand the pans in water in a shady part of the stove. The spores are so small that watering overhead washes them out of their places. More especially is this injurious to them after they begin to vegetate. You should bring home whole fronds from your friend's carefully wrapped in paper. It is much better, whenever practicable, to sow the spores direct from the fronds than to make an attempt at cleaning them, like you would the seeds of ordinary flowering plants. As soon as you can see the young plants, give a little air, by tilting the glasses, to prevent their damping off. When the young plants are large enough to handle, prick them off either singly into small pots or several in large ones, where they can remain to strengthen and then be potted singly. Use peat and plenty of sand whilst the plants are young, and afterwards use a proportion of loam according to the kinds.



GARDEN HOLLIES.

CULTIVATION OF THE HOLLY. No. I.

(With a Coloured Illustration of selected Hollies.)

WHEN is the season to plant the holly? This question has been asked and answered so often, that we should do wrong to bring it forward again unless we had a distinct and useful declaration to make in reference to it. The leaders in horticultural practice may, as regards holly planting, be divided into two parties—those who advocate planting in May, and those who prefer planting in August. As a matter of fact, hollies are planted in every season of the year, except in the very height of the summer, and we see them leaving the nurseries during at least ten months of the year—say from the 1st of August to the 31st of May. When very carefully lifted, and very quickly and skilfully planted, there is no day in the whole year on which hollies may not be planted with a fair prospect of their doing well in their new quarters. A time of severe frost, and a time of great heat and drought would, of course, not be chosen by a planter biessed with an ounce of brains, except in some strange emergency. Thus, if we were to meet with a holly that we much desired, and must have it now or never, we should take it up and carry it home, and take the best care possible to promote its welfare, and blame neither ourselves nor any one else if it perished. We repeat that, with reasonable precautions and prompt action, hollies may be moved at any time; and we could point to large trees in our own collection that were transferred to our grounds when in the full vigour of their new growth, and not one of their tender bright-green leaves suffered in the operation.

So much as to the general reply to the question. There is yet wanting a particular reply. Hollies are costly; they grow slowly, and die slowly; and because of their value and beauty, we are bound to bestow upon them every extra care that may be needful to prevent disaster and favour success. Having, at least, ten months to choose amongst, which is the best for this kind of work. The conclusion appears to be generally in favour of the month of May. As a matter of course, abundant evidence might be adduced to establish the conclusion, for it is by aid of evidence alone that the conclusion has been arrived at. Here we touch on the proper meaning of the designation, “practical man,” to distinguish one who has acquired experience by years of observation and work from one who is said to “theorize,” but who should rather be said to “guess at it.” Now the practical man has learnt to favour May-planting, because, in a majority of instances, he has observed that success has attended it. But as belonging to the practical section, we have come to the conclusion that May is not the best time, and the question arises, why should it be so regarded? Now it is proper to observe that the month of May has not in this respect been fairly contrasted with the month of August. The usual course of procedure is to buy

hollies at the same time as other trees are bought, that is from November to March, and hence it is common to plant hollies with other trees from November to March; and a certain proportion of those planted during this range of five months, die in the course of the following summer. On the other hand, where the hollies are left untouched until May, great care is bestowed upon them; they are carefully planted, the ground is mulched over their roots, and the water-engine is regularly brought to bear upon them, and thus they are nursed and coaxed until the July rains come to their aid, and then, perhaps, they are safe for the season. We repeat that the reason there are few advocates for planting early in the autumn is, that few have tried it, whereas, if a *fair comparison* between August and May could be made, we feel confident the first-named month would obtain the favour of a considerable majority.

It will, of course, be gathered from the foregoing remarks, that May is at least a good time, if it is not the best, and that must be granted. But we wish to point out that when we plant in May, we incur a tremendous risk; for if the summer should set in early and hot and dry, the newly-planted hollies are likely to perish, especially if of any considerable size, for no mulching, or syringing, or shading, will ensure their endurance of the trial unhurt. Now this is the turning point in the consideration of the case. If we were sure of a showery summer, May would be the time to plant hollies; but as we are not sure of even an average rain-fall in the months of June and July, we repeat that we prefer to plant in August, for then the trees are encouraged, by the warmth of the soil and the increasing humidity of the atmosphere, to make fresh roots and become established in their new positions before the heat and drought of a brilliant June, occur, to subject them to exhaustion.

In illustration of these remarks, we will give two examples. In the spring of 1870, we planted about a thousand handsome green hollies, averaging four feet high, and with roots of the best possible description, to make a boundary fence. The work was well done, and was certainly finished some time before the middle of May. It will be remembered that the summer of 1870 was the hottest and driest the present generation has experienced. The hollies soon began to show signs of distress, and to help them was impossible. When autumn returned, one third of the whole number were as dead as door-nails, and a considerable number besides were partially killed, so that it was necessary to root them out and cut them back and put them in nursery quarters, and give them at least five years to recover. This case tells against spring planting; the next will tell in its favour. In the spring of 1873, we obtained from Messrs. Veitch and Sons, Coombe Wood Nursery, fifty-five specimen hollies, which were planted in the month of April. A not very hot, but decidedly showery, season followed, and the whole of them prospered; and at this moment they are starting into growth for the second season in their new quarters, and look as well as the most exacting horticulturist could desire. Having planted thousands of hollies in August, and rarely lost one, even when the

trees were large, we give the final vote for early autumn as the best time to plant hollies.

The plate which accompanies this, represents three of our best garden hollies. It was intended for the January number, but was not ready in time, and so the plate intended for this number was then published instead. The statement explains how it occurs that those now figured precede in numbering those in the January plate.

The garden names of the varieties are—1. *Cornuta*. 2. *Scotica*. 3. *Microcarpa*. 4. *Fisheri*. 5. *Ovata*. 6. *Golden Queen*. S. H.

DINNER TABLE DECORATIONS.

BY MISS A. HASSARD,

St. Ronan's, Upper Norwood.



SHALL confine this paper to the description of the floral decorations of two tables, both of which I arranged myself some few weeks since, when having some friends to dine, and which I am pleased to say were much admired. These two tables were both large, but of different shapes, one being a circular and the other the usual shape of an ordinary set of dinner tables. The latter, being the largest, required more floral decorations than the circular table. The decorations of the set of tables were as follows:—In the centre was a very large Marchian-shaped stand, with a high trumpet rising out of the upper tazza; right and left of it, or rather at the top and bottom of the table, were a pair of handsome palms, which had the appearance of growing up through the table; but they were not put through it, they were growing in rather small-sized pots, and the pots were standing in zinc pans or trays. Besides the above there were twelve specimen glasses, each containing a button-hole bouquet and lady's dress bouquet, placed alternately. The decorations of the circular table comprised a stand similar to that which formed the centre piece of the long table. Also there were four other stands, each a flat tazza with a trumpet about a foot high rising out of the centre of each, and ten specimens with dress and button-hole bouquets. Having so far described the shape of the vases, I shall now turn to the flowers with which they were decorated, beginning with the long table. But first I must state that the flowers were *good*, and some in the market at the same time were bringing a long price; but what I had not myself I was fortunate enough in obtaining from friends. The reason I draw attention to this is, in last month's FLORAL WORLD I wrote on small stands, and not expensive arrangements. Had the flowers which I shall mention been bought in the market, they would have proved decidedly expensive. But I have no doubt many of my readers have many flowers at their command, and perhaps also a long purse. If they have the latter, there are few flowers they cannot obtain in season at Covent Garden Market.

May.

The centre stand of the long table was arranged as follows:—Round the edge of the lower tazza were fronds of *Pteris serrulata*, which were so placed as to overlap each other, and formed a lattice-work of green, which had a very light and elegant effect on the white damask cloth. The tazza was then filled in with deep pink and pure white azaleas, shrouded in maidenhair fern, with a few spikes of spiræa here and there through them. I had no creeper up the stem, but in its place two handsome sprays of Solomon's seal, which waved out towards the head and foot of the table with excellent effect. In the upper tazza were pink azaleas of a lighter shade than those below, with a good deal of spiræa mixed through them, and a fringe of maidenhair drooped round the edge. The trumpet contained two sprays of Solomon's seal and three of dielytra, with a few fronds of maidenhair interspersed through them. The dielytra being of a lighter shade than the azaleas in the upper tazza, shaded the whole thing off harmoniously. The zinc trays in which the palm pots stood were filled with moss, which was well washed, but though the water had been pressed from it, was still wet enough to keep the stems of the flowers placed in it fresh. The surface of the moss was then covered over with sprays of Lady Plymouth pelargonium (the foliage only), which formed the ground-work, and through these were placed white azaleas and sprays of dielytra; the edges of the pans were finished off by a wreath of maidenhair, and up the stems of the palms were twined long sprays of the pretty climbing fern *Lygodium scandens*. The button-hole and dress bouquets were composed of three or more different flowers in each, with a little fern interspersed through them, and of colours which blended well with those in the centre stand, and which were arranged round the base of the palms. Having fully and clearly, I hope, described the decorations of the above table, I shall now turn to the circular one.

In the centre was a stand similar to that above described, and placed round it were the four tazzas, with trumpets rising out of each. The centre stand was decorated as follows:—Round the edge of the lower tier were different varieties of ferns, several of them being gymnogrammas, richly clothed with golden meal, which of course were so placed as to show their colours. In the tazza were four flowers of *Calla ethiopica*, or trumpet lilies, deep purple cinerarias, white azaleas, deutzias, and maidenhair. Up the stem was twined a spray of creeping fig. The flowers in the upper tazza were white azaleas, spiræa, and cineraria, the same shade as that below, the only difference being that those in the upper tazza had a large white centre. The trumpet contained spiræa and cyclamen, a shade paler, or more mauve, than the cinerarias, with a little maidenhair mixed through the whole. The four other stands were grouped round the centre at some little distance; round the edges of each were mixed ferns, with some silver varieties through them. Two of the tazzas were fitted in pairs, two having four white camellias in each, and two having four blooms of *Eucharis Amazonica*; the other parts of the tazzas were then filled in with the purple cinerarias with the white centre, white azaleas, white cyclamen with purple tips, and ferns. The four trumpets matched, being filled

with spiraea, deutzias, and mauve cyclamen; round the mouth of each drooped some fine fronds of maidenhair. From the upper tazza of the centre piece, into the trumpets of the four smaller stands, was arched a fine wire, and round the wire was twined long sprays of *Lygodium scandens*, which had a most charming effect. It was the first time I had tried the effect of this style of decoration, and I was much pleased with the result. The button-hole bouquets, like those on the long table, were made of various bright-coloured flowers. I have no doubt many on reading this paper will exclaim at my selecting purple as a gas-light colour. I myself was for a long time under the impression that any shade of purple or mauve was not suited for artificial light; but in many shades of cineraria and cyclamen I find I was mistaken. The best way to make sure of the shades is before arranging them to subject them to gas or candle-light, and those that look best can then be selected. Several of the cinerarias I find, when subjected to artificial light, appear of a much richer shade than when seen by daylight. The fruit on the circular table consisted of grapes, apples, pears, nuts, dates, prunes, raisins, and figs, some of which were placed on rather high parian stands, and the others in glass baskets, all being decorated with ferns and a little bright foliage. On the water in the finger-glasses floated three leaves of Lady Plymouth, each leaf having resting on it a pip of a double pink pelargonium or a double white primrose. The flowers were kept in their places by the stems being pierced through the leaf. Some of the glasses had two pink and one white, others two white and one pink pip.

DEATH TO GREENHOUSE FOES.

BY GEORGE SMITH.



IN the FLORAL WORLD for February last, I pointed out the means by which severe attacks of the insects that prey on the plants usually grown in the greenhouse may be prevented; and I will now proceed to describe the best way of destroying those which have effected a lodgment on the plants. This is very often no very easy task, for when the plants have once become badly infested, a considerable amount of perseverance is essential, and I need hardly say that those who do not exercise a sufficient degree of watchfulness to prevent the attacks of these pests, do not usually possess a very large share of that desirable quality.

During the last ten or fifteen years a number of nostrums for the destruction of plant pests have been introduced; and if only half of what is said of them was true, there would be but little difficulty in keeping all plants grown in the greenhouse perfectly free. But, unfortunately, when used of sufficient strength to destroy anything more tenacious of life than the greenfly, most of them will kill the plants also. Some of them, however, may be used with advantage, and the best of these are the Aphis Wash, manufactured by the City Soap

May.

Company, and Gishurst Compound, which may be obtained of most of the seed and nurserymen, but they require to be used with care and judgment to be effectual, and at the same time, do no harm to the plants.

From the tenour of the foregoing remarks, the reader will not be disappointed, when I say I do not intend to recommend any one of these compositions for general use: their utility is not to be wholly ignored, I admit; but to use them with safety and with any degree of success requires more skill and care than can at all times be commanded, especially in the garden of the amateur. They had therefore better be left to those who have the inclination to risk their plants for the sake of experiment; and as we are not dependent upon them for a remedy for killing our insects, we shall do wisely if we resort to those measures which for years past have proved to be effective upon our enemies and harmless to our plants; and I shall now proceed to enumerate them.

The GREENFLY is unquestionably the most frequent insect that we have to wage war against, and I will place it on the top of the list. In considering the best means of eradicating it, our first consideration should be the nature of the subjects attacked. These are generally the most soft and succulent plants; therefore, we must use some amount of caution in applying the remedy, or we may do serious mischief. Of the number of insecticides I have used for destroying the green-fly, tobacco is the best. It is the simplest, the safest, and the most sure means of killing them of anything hitherto used.

When it is necessary to fumigate the plant-house, choose a still afternoon, that is to say, when there is not much wind. This may generally be determined on in the middle of the day, when, if the weather looks favourable, start a brisk fire for two or three hours, and open the ventilators, that the plants, and all parts of the house, may be perfectly dry; as if the plants are damp the smoke will be sure to affect the leaves of such plants as are of a soft texture. If there is a nice warm air circulating through the house the insects will be more active, and become an easier prey to the effects of the smoke than if cold and torpid. As we have a variety of plants to deal with, it will be much the safest plan to smoke them gently, by easy stages every alternate day, until they have had three smokings, using just the same precautions as for the first time. It will be necessary at each time of smoking to be careful that the tobacco does not burn too fiercely, so as to generate a great degree of heat with the smoke, as after being once lighted, and the house pretty full of smoke, it cannot burn too slowly to be destructive to insects. The plants that were smoked over night should be well syringed in the morning, to dislodge dead insects, and to sweeten the air of the house. It is much the best to repeat the smokings, as above advised, at intervals of a day or two, because where there is any quantity of fly, there is sure to be a number of eggs left unharmed the first time of smoking, which another day will bring into active life. Hence the importance of a second and third repetition of smoke to effect a complete riddance of our insect plagues. The common shag tobacco,

used in a rather damp state, will be found the best. The most troublesome of any plants I find to cleanse of green-fly is the herbaceous calceolaria, and the most effectual plan of smoking is to stand them on inverted pots in a common garden frame shut up close, with damp mats put on the glass to keep in the smoke. They will not endure strong doses in this way, and a lump of tobacco the size of a bantam's egg will serve for an ordinary two-light frame. With the plants standing on inverted pots the smoke plays around and under the leaves, where the fly collects in the strongest force, much more effectually than when standing on a shelf in the greenhouse. The simplest and best way of burning tobacco for gardening purposes is by using an iron heater: I have mine made about two inches over; it is placed in the fire and made red-hot. A few potsherds are then placed in the bottom of a flower-pot and the heater upon them. The heater is then allowed to cool down for a minute or two, when the tobacco is put upon it, and left to burn itself out, which it will do more surely and slowly than by any other plan that can be adopted. There is certainly no surer means of destroying green-fly than tobacco smoke, when judiciously used. Tobacco paper, tobacco cloth, and the tobacco tissue are all very good in their way; but they are equally as expensive, and less sure than tobacco in its unadulterated and unaltered form; in fact, for my own part, I would rather use home-grown tobacco, when well harvested, than some of the obnoxious trash sold for tobacco paper.

Where it is not possible or convenient to use the tobacco in this form for the destruction of green-fly, it is astonishing what repeated syringings of clear water will do if followed up twice a day for a week; in orchard houses the fly sometimes appears, and where very large, smokings would be rather expensive. In this case weak tobacco water in which to dip the shoots of the trees attacked, with greater diligence in the application of the syringe or garden engine, will soon dispel them. In using tobacco amongst plants in the form of smoke, this caution I deem to be necessary: never use it if possible amongst any choice plants in flower; although some will endure it, the majority—the pelargoniums, for instance—will throw off all their expanded flowers as soon as the smoking is completed.

THRIP.—For the destroying of thrip the remedy must be the same as for the green-fly; but they will not succumb so easily to the effects of tobacco smoke. The best plan of proceeding is to collect all the plants that are affected with it into a separate house, pit, or frame; and there smoke them every night for a week, during which time keep them pretty close and warm. If the operation takes place in summer, shade rather than give too much air. At the end of the week gradually inure them to light and air, and keep the plants constantly syringed twice a day for a month after; at the end of which time you may console yourself with the fact that the thrips have perished. If a vinery should be seriously attacked with thrip, wait until all the foliage and fruit are taken off the vines; then remove all kinds of plants that have green leaves into other houses, fumigate repeatedly for ten days or so. As regards the subjects mostly attacked by thrip, it is some consolation to know that their

attacks are generally confined to hard-wooded plants, and should it be on those of a softer texture, it is not until a want of moisture or a hot dry atmosphere have prevailed ; so that in most cases tobacco smoke may be used in stronger doses for thrips than would be advisable for green-fly.

MEALY BUG AND SCALE.—For the destruction of mealy bug and the white and brown scale, much may be done with just the same treatment as advised for killing the thrip ; but when operating for these insects in whatever way you may, always increase the temperature of the house which you are cleansing. This causes a greater activity amongst the insects, and gives the operator a better chance of seeing and destroying them. None of them like moisture, especially when diligently applied with the syringe. I have known a very badly affected stock of pines perfectly cleansed in a few weeks from the white scale with nothing but clean water frequently applied with the syringe. To destroy either of these insects upon the stems of trees or on the branches of plants, use a mixture of soft soap, tobacco water, and clay, in the consistency of a paint, and apply with a small brush, and take care to remove all the insects visible and within reach. In many instances where plants are badly infested with either of these insects, it will be much better to burn them root and stock, than to incur the labour and worry of attempting to clean them.

FINE OLD-FASHIONED FLOWERS.

BY J. E. SAUNDERS, ESQ.



THE cultivation of the choicer kinds of our old-fashioned hardy flowers is no doubt extending rapidly, and to those like myself who have remained faithful to them through good and evil report, it is highly satisfactory to see amateurs and others filling borders with them that have for many summers past been occupied with bedding plants. I have not a word to say against the bedding system where it is not overdone, but I think the amateurs may save themselves much labour and anxiety by confining the bedding out to the beds only, and reserving the borders for the grand old-fashioned flowers, to which I shall proceed to direct attention. Not only would the labour of providing the stock of bedders be reduced materially, but flowers would be had in abundance early in the summer and at other times in much greater variety. By planting the most attractive of the old-fashioned flowers, there will be an abundance of colour, and the ladies will have no difficulty in obtaining a sufficiency of cut flowers for the drawing-room and other vases.

Cut flowers are now so much in request for in-door decoration that where all the beds and borders are filled, as is very frequently the case, with bedders, there is a considerable difficulty in obtaining supplies, because so few of the flowers are suitable for vases, and there is of necessity too much sameness in those available.

In commencing the cultivation of old-fashioned flowers, it is not

necessary to incur a heavy expense, for large stocks of the majority can be raised from seed costing a mere trifle. A few of those which can be the most highly recommended are, campanulas, columbines, delphiniums, foxgloves, œnotheras, primroses, pyrethrums, sweet-williams, wallflowers, and perennial phloxes. Seed of all can be had in mixtures, and most of them may be purchased of the larger houses in collections, each containing from six to twelve varieties or colours.

There are many other subjects that could be mentioned, but I am anxious to avoid frightening the amateur with a long array of names, and also to confine the attention of my readers to things which can be readily raised from seed. All, it must be observed, that are here mentioned, will bloom freely the year following the sowing of the seed, provided it is sown at the proper time. Some difference of opinion exists as to when the seed of biennials and perennials should be sown, but I fail to understand why it should have arisen. The books tell us that it should be sown towards the end of the summer, and in the autumn, but many years' experience has shown me that those seasons are not the most suitable for this work. To have a good display of flowers, the plants must have a sufficient time afforded them to acquire size and strength by the end of the previous autumn. Let us take the sweet-williams for example. Plants raised from seed sown last year immediately after it attained maturity, are now from two to three inches in height, and the flowers, if any, that will be produced by them will of necessity be exceedingly poor. On the other hand, those obtained from early sown seed are now bouncing bushes, and will make a grand display shortly. In this opinion I am supported by Mr. Hibberd, who for some years past has devoted considerable time and attention to the improvement of these marvellously beautiful flowers. He assures me that early sowing is of prime importance, because the finest display of flowers is obtained from plants raised from early-sown seed, and that to sow late with a view to securing a supply of flowers the following season, is little short of a waste of time. So it is with wallflowers, delphiniums, and in fact all the other things mentioned above. My experience has convinced me that May is the best month for sowing; the earth heat is then sufficient to promote a quick germination, and the plants have all the summer before them in which to make their growth.

The most simple course for the amateur to take, is to set apart a border or a bed in an open position, and then sow in shallow drills, a drill being devoted to each sort. If the soil is dry at the time, pour a moderate quantity of water in the drills, and as soon as it has soaked away proceed to scatter the seed along them rather thinly, and cover lightly with fine soil. We frequently hear complaints of the seeds lying dormant for a considerable period; but this may, in the majority of instances, be attributed to the dryness of the soil, and by pouring water in the drills as here recommended, there will not be much danger of its lying dormant for any length of time. The only attention that the seed-bed will require until the plants are large enough for transplanting will be to keep it free

from weeds, and this can be readily done by running the hoe between the rows as the weeds spring up.

When the seedlings are of a fair size for transplanting they can be lifted, and put either in a nursery-bed, or in the borders, where they are to remain. If the borders are filled with summer flowers, it will be preferable to put them a few inches apart in nursery beds, and wait until the autumn before planting permanently in the border. The plants are likely to succeed better, as they can receive all the attention they may require in the way of watering and protection from snails, and they can be arranged better in the border when it is not encumbered with the bedders.

The arrangement of the plants can be very well left to the individual taste, provided the tallest growing subjects are put at the back, and the dwarfer things in the front. By planting asters, stocks, marigolds, and zinnias, and sowing mignonette and showy spring and summer-flowering annuals between the perennials, a very bright and beautiful display of flowers may be had from the beginning of spring until the end of the summer.

The directions here given for raising biennials and perennials, apply with equal force to the raising of stocks of the choicer kinds of spring bedders. *Silenes* and *saponarias* must not be sown until the end of June or the beginning of July; but all the other things will bloom more satisfactorily if raised according to the foregoing directions. Wallflowers more especially require to be sown early; for to secure bushy plants they must be stopped once at least, and the subsequent growth must have sufficient time to become firm before the cold weather checks it. There are now some fine strains of wallflowers in cultivation. The blood-red, black-crimson, and tall and dwarf golden yellow, are remarkably effective for the mixed border, and the best for masses in the beds. The sweet-william has also undergone considerable improvement of late, and seed saved from a good strain will produce plants bearing flowers remarkable for size, richness of colouring, and clearly-defined markings.

CYPRIPEDIUM LONGIFOLIUM.

BY WILLIAM GEDNEY,

Head Gardener to J. C. Day, Esq., Tottenham.

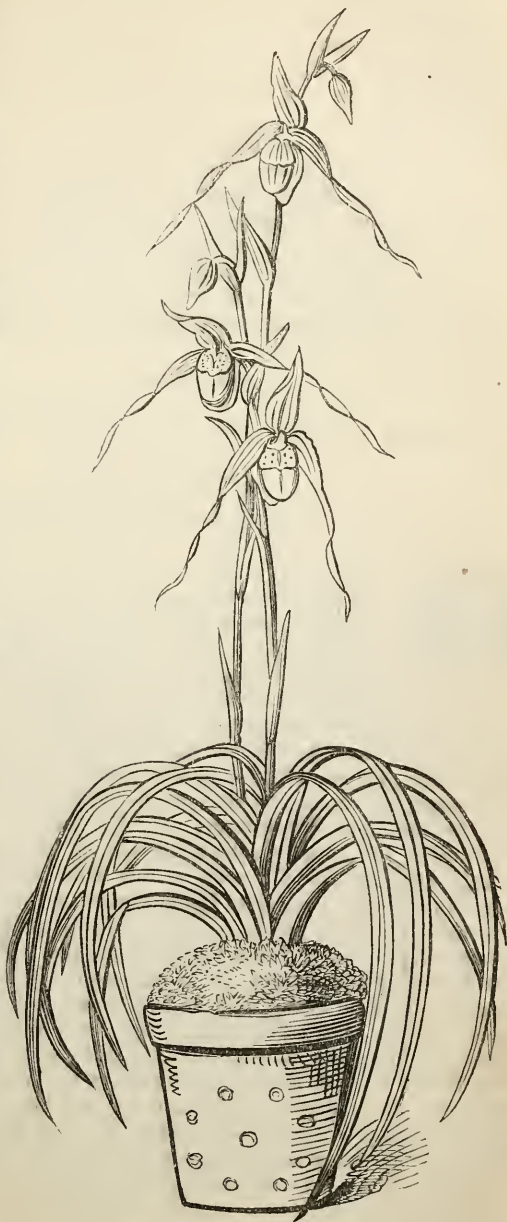


THIS comparatively new and somewhat rare Lady's Slipper is unquestionably one of the best of the species at present in cultivation, and is well deserving of the instant attention of the cultivator of orchidaceous plants. It is alike remarkable for its beauty, distinctiveness, and floriferous character; in the latter respect quite surpassing most of the best-known *cypripediums*. It has also a somewhat stately habit, the leafage being bold and handsome, and the stout scapes rise to a height of upwards of two feet, and those of well-established plants produce from twenty to thirty blooms during the season. It is usually in perfection during the winter season, and as the flowers are

produced in succession in the manner indicated in the accompanying illustration, a few moderately strong specimens contribute materially to the attractions of the orchid house, at a season of the year when flowering plants in that and other structures are by no means abundant. The leaves are rather broad, boldly recurved, and of a deep glossy green hue, so that when the plants are not in bloom, they have a pleasing appearance. The flowers are rather large; the dorsal sepal green, veined with reddish-brown; the long tail-like petals green, with brownish-red lines, the upper part shading to reddish-brown; the lip or slipper greenish, the convex portion painted with reddish chocolate.

Cypripedium Roezli, which has been shown and certificated at the metropolitan exhibitions this spring, is a very near relative of the species to which special attention is now directed, and it is doubtful whether it can be regarded as a distinct species.

May.



CYPRIPEDIUM LONGIFOLIUM.

It is similar in habit and in the shape of the flowers, but the colour is much higher, which alone constitutes the difference between the two. Whether a true species, or a variety of *C. longifolium*, it is sufficiently distinct to admit of both being grown side by side. During the past winter we have had both in splendid condition in the collection here, and ample facilities have therefore been afforded for observation.

With regard to the cultural details, it will suffice to say that both kinds succeed admirably in the warmest end of the intermediate house, or in the house in which the species requiring the greatest heat may be grown. Consequently they may be grown successfully in the ordinary stove. A mixture of sphagnum moss, peat, and small crocks is the most suitable for these, as well as for other Lady's Slippers. The pots must be well drained, and the supplies of water liberal, especially when growing freely during the summer season.

THE BEST BEDDING PLANTS FOR SMALL GARDENS.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



THOSE who cultivate bedding plants largely, and also enjoy facilities for seeing what is grown in the gardens around them, will not stand in any need of information respecting the most suitable bedders for planting. But those who have to buy their plants at this season of the year will, no doubt, be glad of such information, and, as a matter of duty, it is our business to supply them with it. At the onset, it may be said that too much should not be attempted in gardens of limited dimensions, for elaborate schemes require space to show them off to advantage, and unless finished in the most perfect manner, the effect will be far from satisfactory. Carpet bedding is more especially unsuitable for small gardens, because of the immense number of plants required to fill even a few beds and the vast amount of labour required to regulate the summer's growth; for if one line is allowed to become too high, or to intrude upon the space set apart for its neighbour, the effect will be spoiled. With beds filled with the flowering plants, there will be, practically, no risk; the labour of keeping them in order will be very small, and the effect, generally, much better. Carpet bedding is very well in large places to supplement the flowering plants, but it should not, on any consideration, be allowed to push the latter out of the gardens. As the most richly coloured and distinctive bedders are the best for small gardens, I will now proceed to give the names of a few that are likely to prove of the greatest service to those who have to purchase now.

THE ZONAL GERANIUMS deserve the first place, for they produce a grand effect, and can always be relied upon. One of the very best of the cheap kinds, with scarlet flowers, is *Vesuvius*, which is remark-

ably neat in habit, and blooms profusely throughout the season. *Omega* is similar in character, and has flowers of a more brilliant colour; but it is not yet so well known, and is a trifle dearer. *Orbiculata* is another fine dwarf variety with scarlet flowers. For a strong grower, with scarlet flowers, take *Warrior*, an improvement on *Punch*. For medium-sized beds, take *Triomphe de Stella*, brilliant orange-scarlet; *Star of Fire*, deep scarlet, and *Waltham Seedling*, deep scarlet. The three last mentioned are nosegays, and are the best in their several shades. In the rosy-scarlet shades, our old friend *Lucius* is quite unsurpassed; it grows rather robust, especially if the soil is in good heart; but it produces fine trusses, and makes a splendid display. *Bayard* and *Violet Hill Nosegay* produce flowers of a similar colour, and are remarkably free-flowering, and in every way desirable.

The pink varieties are generally great favourites with the ladies, and several fine varieties have been introduced lately. *Mrs. Upton*, *Mrs. Pottle*, and *Advancer*, are three really good varieties with pink flowers, and may be obtained at a cheap rate. *Amy Robsart*, *Amaranth*, *Bella*, and *Maia*, are four splendid pink varieties for bedding, but they are yet too expensive to admit of their being recommended here. White and salmon-coloured varieties are less valuable than the pinks and scarlets, but those who like to have a bed or two of them should select *White Princess*, or *Madame Vaucher*, for a white; and *Gloire de Corbeny*, or *Sensation*, for a salmon-coloured.

VARIEGATED GERANIUMS, including the golden-leaved bronze zonals and tricolors, comprise a series of varieties most useful for masses and marginal lines, or belts. The best of the cheap golden tricolors are, undoubtedly, *Sophia Dumaresque* and *Mrs. Pollock*. There are others much better, but they are expensive. The cheap silver tricolors that can be the most strongly recommended are *Italia Unita* and *Mabel Morris*, *Rev. Mr. Radclyffe*. *Crown Prince*, *Rev. Mr. Radclyffe*, and *Kentish Hero*, are three good bronze zonals, and *Crystal Palace Gem* is the best of those with plain golden leaves. It is, in fact, the finest yellow-leaved plant for edging purposes extant. *Robert Fish* and *Creed's Seedling* are two compact growing varieties, with greenish-yellow leafage, and in every way desirable for marginal belts. The two best variegated varieties are, *Miss Kingsbury* and *Queen of Queens*.

AGERATUMS are useful, for they succeed in most soils, and the light blue flowers present a pleasing contrast with other things. *Imperial Dwarf* is the best; it attains an uniform height of nine inches, is bushy in growth, and blooms very freely. *Prince Alfred* is rather taller, and suitable for back rows. The white varieties are quite worthless.

CALCEOLARIAS are wonderfully effective where they do well. In a deep rich soil they generally produce a rich display of colour throughout the season. *Golden Gem* and *Gaines' Yellow*, both yellow, and *Beauty of Montreal*, crimson, are the most reliable. It will not be prudent to plant calceolarias in quantity in poor soils.

LOBELIAS are of too much importance to be passed lightly over,
May.

for they constitute a most valuable class of plants for small beds and edging large ones. There are two types of these flowers, one of cushion-like growth, and known as the *pumila* section, and the other of stronger growth, and more spreading, and known as the *speciosa* section. The varieties comprised in the last-mentioned section are the most desirable, as, under favourable circumstances, they bloom freely throughout the season, whilst those belonging to the other break down occasionally and leave ugly blanks. Moreover, as the varieties of *speciosa* grow with a greater degree of vigour, fewer plants are required for a given space, a consideration of no little importance to those who have to buy. *Brilliant*, dark blue, and *Mazarine Gem*, rather light blue, are the two best forms of *speciosa*. *Blue King* is also good, and a fine strain of *speciosa* is not to be despised. The most useful of the varieties of *pumila* are *Pumila grandiflora*, bright blue; *Annie*, lilac; and *Purple Prince*, purplish lilac.

PETUNIAS suffer somewhat in rough weather, but they furnish us with fine masses of rose and purple in ordinary good soil, and if the soil is not rich enough to promote a luxuriant growth, they will not suffer materially from exposure to a few heavy showers, which alone are capable of doing them any harm. There are but few sorts suitable for the flower-garden, and the best of these are:—*Spitfire*, deep purple; *Miss Earl*, pink; and *Single Beauty*, light purple.

VERBENAS, like calceolarias, succeed best in moderately cool and comparatively rich soils, and when they do well present us with splendid masses of colour. They are in fact quite unsurpassed when they do well. The most effective of the scarlet varieties are:—*Basilisk*, *Crimson King*, *Hercules*, and *Melindres splendens*. Of the other colours, the undermentioned can be well recommended:—*Polly Perkins*, magenta; *Sportsman*, rose pink; *Purple King*, purple; and *La Grande Boule de Neige*, white. There are a considerable number of other varieties that may be planted out, but the foregoing are the best for bedding purposes, and a large number is really not required.

NOTES ON BEDDING OUT.

BY JOHN WALSH.



FEW days after the May number of the *FLORAL WORLD* is in the hands of its readers, amateurs and others will be busily engaged in the work of filling their flower-beds for the summer season, and a few words of advice will perhaps prove of some service to them. There are several matters to consider in dealing with this question, all of which are more or less important. There is, for example, the preparation of the beds, the hardening off of the plants, the most suitable time for planting out, the proper arrangement of the colours, and so on. I shall endeavour to say a few words in reference to each of the

points mentioned, but it will be impossible to deal fully with each, because of the space that would of necessity be required.

Let us first of all consider the preparation of the beds. In doing so it is needful to observe that this should be done as early in the season as circumstances will permit. If it can be done immediately after the beds are cleared in the autumn, it will be an advantage, but as the beds are now generally filled with spring flowers, few indeed are the instances in which they can be prepared in the autumn for the summer season. The preparation consists in digging them up rather deeply, and in certain cases manuring them liberally. Some of the bedders require a much richer soil than others, and therefore it will be necessary to determine first of all what each bed is to be filled with.

Speaking generally upon this point, it may be observed that zonal pelargoniums, tropæolums, tagetes, petunias, perilla, golden feather, centaureas, and a few other things, succeed most satisfactorily in soils that have not been enriched with manure. If the soil is exceptionally light, a moderate dressing of manure will be of service, but as a rule the plants do better without it. On the other hand, the soil for calceolarias and violas cannot be too rich, and liberal manuring may be regarded as the best specific for the disease which frequently does so much mischief amongst the former. Between these two extremes we have the verbenas, annual phloxes, heliotropiums, ageratums, lobelias, and the majority of the foliage bedders that produce the best effect when planted in soil which has been enriched moderately with leaf-mould, or partly decayed manure. The most important matter in the preparation of the beds is deep digging, for if the roots are able to penetrate to a distance of fifteen or twenty inches below the surface, the plants will make satisfactory progress even if the soil is poor, and they will not, moreover, be quickly affected by drought. For securing a continuous display of flowers until late in the season, no aid the plants can receive is equal to deep digging. The beds must be cleared and dug over as soon as the spring bedders are past their best for the purpose of exposing the surface soil to the atmosphere for a week or so previous to planting.

Hardening off the plants properly is of prime importance, for when put out in a weakly or tender state in the unfavourable weather occasionally experienced during the first two or three weeks in May, they suffer so much that half the summer is in many instances gone before they thoroughly recover. Every effort should now be made to remove all the more hardy things, such as the geraniums, calceolarias, and verbenas, from the frames to a sheltered situation out of doors. In doing this place them in blocks of a convenient size to admit of their being protected with mats or canvas in case of a sharp frost. The more tender things, as for example, the coleus, alternantheras, and seedlings of hardier subjects raised late in heat, should be taken from the greenhouse and other structures they may occupy, and be placed in the pits previously occupied with other things. It will be needful to keep them close for a day or two at first, but afterwards they must be fully exposed whenever the

weather will admit of its being done with advantage to them. Until a week or so before they are planted, the lights must be put over them at night for the purpose of maintaining sufficient warmth about them to prevent any check.

In planting out the various subjects, take advantage of dull showery weather as far as possible, and commence with the hardiest things to be planted. For example, the violas are quite hardy, and the centaureas and calceolarias are hardy enough to withstand the effects of the sharpest frost likely to occur in May. These should therefore be put out in the first or second week in May; and after the middle of the month the geraniums, lobelias, verbenas, and ageratum, may be planted; but the alternantheras, amaranthus, and coleus must not be planted until quite the end of the month, or the first week in June, for the slightest frost is sufficient to blacken them. It is essential to plant the calceolarias at the earliest moment after it can be done with safety, to afford them a fair opportunity for becoming thoroughly established before the summer heat is upon them. Plants grown in boxes or in beds of soil in frames, must be planted quickly after they are divided, for the parching winds soon dry up the points of the tender roots, and do considerable injury to them. They should also have a good soaking of water afterwards and be sprinkled overhead in the evening of the next six or eight days if the weather happens to be dry. With this assistance they will hardly feel the move, and in all probability soon overpass plants that have been turned out of the pots. Geraniums turned out of pots will not require any watering at all; but two or three liberal supplies will be found of considerable service to the majority of other things. As the season is so exceedingly short, the plants must be put rather close together, so that they can fill the beds, as it were, at once. This is especially necessary in the case of tender things, which make but little growth after they are planted.

The arrangement of the colours, and the filling of the beds must of necessity be regulated by individual taste and the stock of plants available. The finishing of the beds with marginal bands of some distinctive subject is not yet rightly understood by amateurs and others, who have not much bedding out to do, and frequently very serious mistakes are made. Lobelias are perhaps used for edging purposes more generally than any other subject, the golden feather alone excepted. Yet few things could be more unsuitable. The colour of the flowers and the character of the growth are alike unsuitable, and when the beds are upon grass, the flowers become so blended with the grass when seen from a short distance, that they present a most ineffective appearance. There is no objection to the employment of lobelias in finishing off flower beds, provided they are divided from the grass by a sharp line of some white-leaved plant, cerastium or echeverias, for example. Large beds have the most highly finished appearance; when the marginal band consists of three rows, the two outside rows balancing each other, and the middle corresponding, to a certain extent, with the plants used in filling up the bed. In the case of a series of beds by the side of the walks, a better effect is produced by edging each with the same

plants and in precisely the same manner. Or if the beds consist of two classes of beds, such as circles and oblongs alternately, the former may all be edged alike, and the latter alike. But when all the beds forming a series are finished off differently, the effect is not good.

With reference to the arrangement of the colours, it will suffice to say that the various shades of blue, rose, and pink, produce the most pleasing contrast in combination with white and grey, and that the dark shades, such as crimson, chocolate, red, and scarlet, are the most effective when in juxtaposition with orange, yellow, and sulphur, and bright scarlet also consorts well with white and grey.

THE BEST DOUBLE GERANIUMS.

BY WILLIAM GARDINER.

DOUBLE-FLOWERING geraniums have been wonderfully improved of late, and although many of the varieties introduced during the past two years are comparatively worthless, the list of those distributed during that time so thoroughly surpass the older sorts, that a thorough revision of the list has once more become necessary. There are now too many in the trade lists, and a careful comparison of the varieties comprised in my collection, when they were in bloom last year, proved most unmistakeably that twenty varieties could be discarded with advantage. Unless large highly-finished specimens are required, —and they are hardly wanted, excepting for exhibition purposes,—there is no great difficulty in growing them satisfactorily. I am very partial to them for the conservatory, as they produce an exceedingly rich effect, and a good stock may be produced by a very simple course of management. We grow them in the form of neat bushes, and commence by selecting, early in May, thrifty plants that have been kept in three-inch pots during the winter. A mixture of turfy loam, leaf-mould, and sand is then prepared, and the plants are at once shifted into six-inch pots. Too much pot room is not desirable, for they have naturally a tendency to grow luxuriantly and produce but few flowers, and when put in large pots they assume the proportions of big bushes, and bloom very sparingly. When repotted we stand them upon a layer of coal ashes, made up in an open position, water them liberally, and stop their shoots twice or three times, two stoppings being, as a rule, sufficient to assure the production of bushy plants. As soon as they commence to flower after the last stopping they are taken to the conservatory, where they will continue to bloom for a considerable period, with no more attention than keeping them supplied with water, and removing the decaying flowers as required. No tying or training is required. The undermentioned comprise the finest and most distinct at present in cultivation, and can be obtained at a cost, on an average, of ninepence each :—

L'Année Terrible, orange-scarlet, pips large and full, and produced in good trusses.

Incendie de Fontenay, deep scarlet, dwarf, and very free flowering.

Préfet de Lyon, deep velvety scarlet; pips and leaves large; habit dwarf and neat.

Scintillant, bright scarlet; pips and trusses of medium size, freely produced; habit dwarf.

Jewel, deep scarlet; pips medium size, resembling a small rose-bud, and therefore exceedingly useful for button-hole bouquets. Remarkably distinct, neat, and free.

Le Vengeur, deep red; back of petals shaded white; pips similar in shape to the preceding.

Madame Dauphin, deep rose, shaded light mauve or deep lilac; trusses of medium size, but produced most profusely; very fine.

Marie Lemoine, rose pink; flower trusses large. This still maintains its character as one of the best of the pink varieties.

Miss Evelyn, rose-pink; very strong in growth, and useful for large specimens.

Marie Crousse, bright rose-pink; pips large and double, and produced in good trusses; dwarf and free; a splendid variety.

Patriote Lorraine, orange-scarlet; dwarf in growth, and a most abundant bloomer.

Mr. Gladstone, bright orange-scarlet, dwarf, free, and desirable.

Emilio Castelar, rose-purple, shading to magenta; trusses of fair size and quality. A very strong grower.

Madame Crousse, bright rosy-purple; trusses large; much dwarfer than the preceding.

Asa Gray, orange-salmon or chamoise; flowers large and double; very distinct, and dwarf in growth.

Aline Sisley, white; flowers small, but fairly produced; dwarf and compact.

POT CULTURE OF RHODANTHE MANGLESI.

BY ROBERT OUBRIDGE,

Church Walk Nursery, Stoke Newington, N.



THESE pretty everlastings are tolerably well known to amateurs as garden flowers, but very few know how effective they are when grown in pots for the conservatory, and as I have an half hour to spare, I will briefly describe the best way of managing them, so as to have them in perfection. We grow them, I must confess, by the thousand for market purposes, but if I wanted a dozen pots or so for my own entertainment, I should manage them in exactly the same way as I should a thousand. There is in fact but one way to do them well, and as that is so simple I am really puzzled as to what I shall say without appearing to tell the readers of the *FLORAL WORLD* what they know already.

For a private garden, from one to three dozen specimens will be

quite sufficient, unless a succession is required, but I would advise the amateur not to trouble about successional batches, for in decorating the conservatory there is nothing like having a regular change of plants. There are two ways of beginning; one is to sow the seed in the pots in which the plants are to bloom, and the other is to sow in a pan or box, and prick the plants off as soon as they have two pairs of leaves. I can recommend the latter plan as being the best, for there is not much likelihood of the soil becoming sour before the plants are big enough to make a good start. Sow the seed rather thin, and when the plants are of the size mentioned, fill a sufficient number of five-inch pots with a nice light compost of loam and leaf-mould, or loam and manure. First of all, put a layer of crocks in the bottom, over these a layer of moss, leaf-mould, or the roughest part of the compost, and then fill to within half an inch of the rim, pressing it rather firm. Make the surface level, and prick out the plants regularly at the rate of ten or twelve in each pot, sprinkle them lightly as each pot is filled, and place in a frame where they can be shaded for a few days during bright sunshine, and kept rather close until established. The shading must not be used a day longer than is really necessary, and air must be admitted freely as soon as the plants are established sufficiently to bear the exposure without flagging. From this stage until they come into bloom it will be simply necessary to keep them near the glass, supply liberally with water, and ventilate freely. When about six inches in height, put three stakes round the outside of each pot, and as the plants progress in height, they can be most effectually supported with a few strands of bast.

CONSERVATORY DRACÆNAS.

BY JOHN BURLEY, F.R.H.S.,

Hereford Road Nursery, Bayswater, W.



IN the FLORAL WORLD for March last, I had the pleasure of offering a few remarks on the selection and cultivation of palms suitable for furnishing conservatories and sitting-rooms, and I am glad to learn that they were much appreciated. From the letters which have reached me from subscribers, it also appears that many readers would be glad of information on the cultivation of other classes of fine foliage plants suitable for the conservatory. Accordingly, I have prepared a few notes on the Dracænas, which stand next in importance to the palms, and I shall, perhaps, have something to say about other fine foliage plants in the course of the season.

Of late years I have been frequently asked the question by my patrons who have seen Dracænas and other fine foliage plants on the continent, why they are not more generally used for decorative purposes in this country. Why, indeed, because it is the prevailing idea amongst most plant-growers that foliage plants of all kinds require stove-heat to grow them, and that it would be certain

May.

death to them to place them in a greenhouse or conservatory, and especially a sitting-room, for any length of time. Now I can assure your readers that nothing can be more fallacious than such an idea, for I know of no plants that will bear more ill-usage than most foliage plants, palms and dracænas especially. I know where there is at the present time a group of foliage plants, kept in a large flower-stand in a gentleman's drawing-room, which for years past has at times been a great attraction and much admired by visitors. These plants are there nine months out of the twelve; the other three months, as the family are out of town, they are in the conservatory. They get a good watering during their stay there, with a fine rose watering-pot overhead, which builds them up again for the coming winter for the stand in the room. I must add that, in their seasons, there are introduced hyacinths, tulips, small azaleas, and other flowering plants, to give life to the foliage. But in the winter season, without anything else, the foliage plants are sufficiently attractive, in fact, the stand without the foliage plants would be like scores of similar stands where flowering plants alone are used—that is, stiff and flat, an encumbrance and an eyesore. The same remarks apply with equal force to the general way in which most conservatories are arranged. There is a want of gracefulness in the general arrangement. There is a lack of fine-foliaged plants, a lack of subjects with grace and decision in their characters to make the thing complete. I am sure all who have seen foliage plants skilfully blended with flowering plants will quite agree with me on that point.

The Dracænas, it may be safely said, are as graceful a family of plants as one could desire for decorative purposes. Now I will not attempt to tell our readers the different parts of the globe these beautiful plants have been introduced from, but will content myself by saying that the varieties I shall name are suitable for a greenhouse, and of course it follows that they come from temperate climes. In Italy, many kinds of Dracænas may be found growing without any protection for the greater portion of the year; and in England, even, I have proved that *D. indivisa* is not at all injured should the thermometer go down to freezing point. And what a beautiful variety this is, so graceful, and bright-green in its foliage, with the centre erect, and the surrounding leaves falling so gracefully around, resembling the spray of a fountain! The same may be said of *D. australis* and *D. congesta*, the former especially, with foliage long and willow-like in form; whilst the latter is one of the best window plants in existence. *D. ferrea*, the “purple dragon-tree” of China, is very desirable for its dark purple foliage and general tropical character. *D. terminalis* is well known by its foliage of light green and broad flakes of red. Similar to it in colouring and character is *D. Cooperii* and *D. striata*; but these two varieties require the stove in winter. But while speaking about Dracænas, we must not forget to name the beautiful striped-leaved *Cordyline indivisa*, with its broad, bold foliage, with lines of silver, orange, and green. There is also *D. rubra*, which name applies to the colour of the bloom, and not to the leaves, for they are in all

respects similar to *indivisa*, but more stiff and erect, and a shade darker green. This is a very hardy and cheap variety.

Of late years a considerable number of new sorts have been introduced, but as they all require a stove temperature, it would serve no useful purpose to say anything about them. *D. Guilfoylei*, the hardiest of recent introduction, is very graceful, and has slender arching leaves, striped with white, red, and green.

Dracenas thrive well in a mixture of equal parts of brown peat, silky loam, and leaf-mould, with a small portion of silver sand. They require plenty of water at the root in the spring and summer seasons; but it is very injurious to them to water them overhead at any time, as the water lodges round the heart and stem, and rots the foliage at their base. I have seen many valuable plants rendered unsightly by this treatment; so I hope our readers will avoid it; and this applies more especially to *Cordyline indivisa*. In the months of January and December, this plant should be very sparingly watered at the roots, and not at all until it gets very dry, and then only just give enough to keep the plant from being distressed, and prevent the cracking of the soil around the side of the pot. I will add, in conclusion, that it will be necessary in the hot days of summer to give them plenty of air by day, and before closing the conservatory at night to well sprinkle the floor with water. By so doing, it will keep away the red-spider from them, as well as artificially resemble the dews of night of their native habits. They should be also shaded from the hot rays of the sun, otherwise, the edges of the leaves will become brown, and spots of the same colour will appear on their surface, thereby partially destroying their beauty.

NOTES ON THE NEW ROSES.

BY GEORGE GORDON.



At the present moment is most favourable for the purchase of roses in pots, a few words on the new varieties now being offered for the first time will perhaps be interesting to many readers of the *FLORAL WORLD*. In the purchase of continental roses the first year of their being distributed in this country, there is of course a considerable degree of risk, because we have to depend entirely upon the raisers' descriptions, and they are mostly terribly overdrawn. The name of the raiser is the best guide in making the selection, because some raisers are most jealous of their reputation, and like the raisers on this side of the channel, are very careful to allow none but really good varieties to pass out of their hands. Others again are less scrupulous, and whether they have been successful or not in the raising of good flowers they send us over a given number every year. The raisers upon whose productions the greatest reliance can be placed, are:—Ducher, who has sent a fine lot of tea-scented and noisette roses in his time: Gonod, from whom we have obtained

May.

Madame Clemence Joigneaux, Elie Morel, and others: Lacharme, the raiser of Alfred Colomb, Victor Verdier, Madame Lacharme, and other first class varieties: Levet, another good raiser of tea-scented varieties: Pernet, the raiser of Baroness Rothschild, and Marquis de Castellane, two of the most popular roses we have: Schwartz, the raiser of John Laing and others: and Eugene Verdier, the raiser of Dr. Andry, Prince Camille Rohan, Ferdinand de Lesseps, and other roses well known for their good quality and general usefulness. It would not do to reject the roses of all the other raisers, or even of those who come before us for the first time, because if we do so we shall run the risk of losing many fine varieties. For example, those famous roses Gloire de Dijon, Monsieur Furtado, Marechal Niel, and Comtesse Chabrilland, came from rosarians who do not appear to have raised and distributed more than one or two varieties each. At the same time, considering the risk, amateurs should buy cautiously, and wait until an opportunity is afforded for seeing blooms at the exhibitions before purchasing the productions of unknown men. English raised roses are usually exhibited several times before they are distributed, and consequently abundant opportunity is afforded for forming a just estimation of their merits.

There are about fifty Continental roses on offer this season, and from this large number we may at least expect to obtain a few that are really first-rate. To buy all is quite out of the question, and in making a selection from the hybrid perpetuals, the undermentioned appear likely to prove the most meritorious:—

Baronne Vittat, one of Liabaud's seedlings, which is said to have large flesh-coloured flowers, of fine form, a vigorous habit, and ample clear, green foliage. *Captain Christy* is one of Lacharme's seedlings, and there need be no hesitation in buying it, for it was exhibited in splendid condition at the Rose Congress at Lyons last year, and was then awarded a first-class certificate by the jurors. The flowers are large, full, and of a delicate flesh colour; it is very distinct, and will most likely prove one of the finest of this year's introductions. *François Courtin* and *John Harrison* are two dark flowers from E. Verdier's seed-bed, full of promise. The colour of the former is purplish cerise, and of the latter blackish crimson. *Miller Hayes*, from the seed-bed of the same raiser, is said to produce flowers of large size and fine globular form; the colour bright crimson, shading to velvety red. *Madame Louis Leveque*, from Leveque's seed-bed, is likely to prove good, for the few roses this raiser has distributed have been exceptionally fine, and are generally found in winning stands at the exhibitions; the flowers are represented as being large, full, globular, and of a clear bright rose. *Madame Marie Fingier* has been selected from the seed-bed of Rambaud, a raiser quite unknown to rosarians here; but as it had the distinction of a first-class certificate conferred upon it at the Lyons Congress, and was distributed first by Lacharme, few doubts need be felt as to its merits. The habit is said to be vigorous, the flowers large and globular, and the colour bright flesh colour, approaching to carmine in the centre. *Marie Therese*, from Ducher's seed-bed, is likely to be a good garden rose, for the flowers are of a pleasing

shade of rose, and are said to be produced continuously throughout the season. *Prince Paul Demidoff*, one of Guillot Fils' productions, appears likely to prove a valuable addition to our list of bright carmine roses. The flowers are large, full, of good form, and said to be produced continuously throughout the season. This also was awarded a first-class certificate at the Lyons Congress. *Madlle. Marguerite Jamain*, one of Jamain's seedlings, is full of promise. The flowers are of a lively shade of rose-pink, of fair size and fine form. *Triomphe de Rosomenes*, from Gonod's seed-bed, is represented as producing flowers remarkable for size and perfection of form; the colour, deep velvety-crimson, the petals shading to fiery red. The growth is said to be vigorous, and the flowers produced continuously. *Perfection de Blanches*, a variety raised by Schwartz, will most probably become a general favourite, for the flowers are said to be pure white, of medium size, and of good form. There are several good tea-scented varieties, but they do not appear to be of sufficient importance to justify their being purchased at the price usually charged for new roses. Besides, we have so many good things in the same class that we could well afford to wait for them.

The beautiful light rose, *Madame Lacharme*, has been presented in splendid condition at the spring meetings of the Royal Horticultural Society, and the last time it was exhibited it had a first-class certificate conferred upon it. It is no doubt one of the best roses of last year, and the finest of all the light hybrid perpetuals. Mr. Bennett, of the Manor Farm Nursery, Stapleford, Wilts, who exhibited the specimen which had the certificate conferred upon it, exhibited at the same time two stands of blooms of a seedling of his own raising, under the name of the *Duchess of Edinburgh*, and was most deservedly granted a first-class certificate for it. The flowers are of a similar character and colour to *La France*, one of the most beautiful and popular of pink roses, but they are much fuller, and of finer form. This will ultimately become a very popular variety, for it is wonderfully free flowering, good blooms being produced on each shoot, even when the plants are grown in pots and forced into bloom. Indeed, some plants I had the opportunity of seeing early in the season were literally smothered with flowers.

SPRING FLOWERS.



WE begin to be persuaded that our advocacy of the claims of hardy spring flowers, and our criticisms of their merits, have not been in vain, and that possibly we have turned the tide of fashion in favour of the many beautiful hardy plants that are adapted for the embellishment of our gardens, but which have for many years past been neglected, owing to the rage that has prevailed for plants that are tender in constitution and ephemeral in their attractions, and comparatively destitute of interest. In a certain sense, every plant has a claim upon our admiration of its structure, and some points of interest arising out of its history, physiology, uses, or distribution.

But the general question is not raised when we direct attention to hardy plants as admirably adapted to gratify the tastes of amateurs who keep gardens and gardeners for purposes of recreation, the embellishment of the home, and as means of education for their children. It is not a general but a particular question that arises, whether all the resources of an establishment shall be directed to the production of a gorgeous display during the three summer months, to the exclusion of numerous beautiful and interesting subjects, or whether the best means shall be taken to secure interest and beauty for all seasons, even if the bedding display should have to be reduced in magnitude and glory. And, as a rule, the bedding display *will be* contracted, and hardy plants will have more attention and be better appreciated, and gardening will become less costly and more delightful.

Our horticultural amateurs are scarcely aware of the vast variety and exquisite beauty of the hardy plants that flower at this season of the year. It is but in a few gardens they are to be met with; it is but in few gardens they are cared for and understood. But there is much inquiry about them. Trade cultivators, who a few years since cleared them out from their nurseries, wish they had kept them; for the demands of the time compel them to make purchases, at comparatively high prices, of things that ten or fifteen years ago they considered as rubbish. It is a fickle climate, but not more fickle than the tastes of the people who endure its rough usage, and thrive under its assaults of heat and cold, and wet and dry, that have no rule, and change from one to the other without warning. Yes, there are thousands of persons who are interested in gardening who can now see beauty in hardy border flowers, though a few years since they spurned such things as fit only for cottagers. The plain truth about the matter is that for some time past the cottagers have had the best of it; their great patches of white arabis, and yellow alyssum, and purple aubrietia; their velvety and richly-laced polyanthus, their double and single primroses, and their sweet-scented stocks and wallflowers—have made a mockery of the rich man's parterre, which is a mere desert, all blank and bare when the cottager's garden is brimming with flowers and eloquent with perfume, and every tree is a bower of sweets and a musical academy.

The time is at hand when we shall turn from ephemeral displays that are costly to things of permanent value and beauty that are as cheap as sunshine and fresh air, and wonder that the horticultural mind could have been so long under the influence of a delusion. These remarks are not intended to be antagonistic to the bedding system. Promenades and parterres need as much to be furnished, and richly furnished too, as do dining and drawing-rooms. Where the bedding system is in keeping with its surroundings, it is one of the necessities of first-class gardening, as essential in its place as carpets and pictures are within doors. But when small gardens and contracted purses are enthralled by it, when the garden is kept destitute of beauty and interest nine months in the year that it may be absurdly gay during the remaining three, we can only say that such an abuse of the bedding system brings disgrace on the art of gardening.

S. H.

ON EARTHING GROWING CROPS.

BY A KENTISH GARDENER.



THE practice of applying additional supplies of fresh earth to the roots of growing crops is of considerable utility when properly carried out; and for the information of those who have not had much experience in the matter, I propose to make a few seasonable remarks upon the subject. The value of earthing all growing crops is only to be measured by the subjects under cultivation, and the purposes for which they are required—as, for instance, the value of repeated applications of some fine dry earth, gently shook over small seedling plants at this time of year, such as the seed-beds of all the Brassica tribe, can never be estimated at its correct value except by those who have worked it out in previous years, as very few will credit the stout, sturdy plants it creates, to say nothing of the increasing number of young rootlets that are formed by encouraging young roots to spring forth higher up the stem. This is more especially valuable in stiff clayey soils, where the young plants have nothing beneath them to induce a downward tendency of the roots. These remarks apply with equal force to the same plants when removed to other quarters. Spring-planted cauliflowers, for instance, are greatly benefited by the addition of some fresh soil drawn up to their roots two or three times during their active season of growth. The same may be said of the autumn and spring planted cabbages, and, indeed, any of that class that is supported by a stem only a few inches high; for, besides encouraging a greater root action, the additional supply of earth serves to steady them against the wind, and prevents that rocking, if I may so express myself, that all such plants are subject to if there is not sufficient weight against the stem to keep it firm in its proper place. Peas, again, are greatly benefited by constant earthing, as it serves during dry weather to prevent that excessive amount of evaporation that would otherwise take place. All kinds of beans will keep in bearing longer if they receive two or three fresh earthings during the season of growth; but the most successful of all the crops I have yet dealt with was the vegetable marrow. This delights in fresh soil, and, in fact, with me, does much the best when about every three feet of the stem is layered, as it were, and a basket or two of earth placed upon the joint. Cucumbers, too, are strengthened in this way, especially when they have been in bearing some time; and it is well known that when melons are grown in ordinary frame-beds the young fruit swells much faster when the fruiting shoot is covered with earth than when exposed to the heat of the direct action of the sun.

Again, stocks and asters are especially improved if the stems are earthed up once a fortnight while they are making their growth; so, also, are all the border annuals, if previously thinned out, and about two sprinklings of fine earth shook round their roots; it will do them more good than four times watering would do. In early spring, old

strawberry beds, when the crowns have risen above the level of the soil, receive quite a fresh stimulus if some rich fine soil is laid round the roots; into this they make vigorous roots, as it is more kindly than an ordinary border soil; and the same may be said of seakale and rhubarb plantations. Many fail with radishes, when grown under glass in early spring, because they will not take the trouble to earth them, that is to say, to give them a sprinkle of fine dry soil every week to cover up the stems of the young plants, which at this early season are always drawn for the want of sufficient air. In the absence of anything better, I have frequently used dry sifted cinder ashes, and for many young plants this is better than soil, as the roots will work in it quite as freely, and it prevents, at the same time, the slugs working amongst them, as they do not like the rough surface to travel upon.

As a last remark, I cannot avoid saying that gardeners generally do not attach sufficient importance to the practice of earthing all young seedling plants, as it is a sure preventive against their getting long-legged, as well as against mildew and, that worst of all evils, damping off.

THE GARDEN GUIDE FOR MAY.

“Then came fair May, the fayrest Mayd on ground,
 Deckt all with dainties of her seasons pryde,
 And throwing flowres out of her lap around :
 Upon two Brethren’s shoulders she did ride,
 The Twinnes of Leda; which on eyther side
 Supported her like to their sovaine queene;
 Lord! how all creatures laught when her they spide,
 And leapt and daunc’t as they had ravisht beene!
 And Cupid selfe about her fluttered all in greene.—SPENSER.



MAY is generally a dry month, but in respect of temperature very variable, a week of brilliant summer weather being succeeded, perhaps, by ten or twelve days of bitter cold; when, as the poet says, “winter lingers in the lap of May.” Beware of bad weather about the 20th, and be in readiness to protect tender subjects of all kinds that are out of doors. The barometer is usually high during this month, the mean of the month being a fraction under thirty inches; prevailing winds north-west and north-east, the latter bringing sharp night frosts.

There is practically no limit to the number of garden flowers in perfection this month. We have, for example, the evergreen candy-tuft, campanulas, scillas, feathered hyacinths, crown imperials, linums, anemones, Alpine phloxes, German and other iris, dielytras, pansies, blue-bells, and columbines.

The garden-work of May includes the filling of the beds with their summer occupants, parting and planting in nursery quarters the perennials employed in the embellishment of the flower-garden during the spring, planting out from the seed-beds the

main-crops of summer and autumn vegetables and the sowing of successional supplies. Indoors, the disbudding of fruit-trees, thinning of grapes, the repotting of hard-wooded plants and the shifting of soft-wooded plants for the conservatory will require the most immediate attention.

FLOWER GARDEN.—The most important work in this department just now is to thin the annuals sown last month, and then take up primulas, polyanthuses, daisies, and other spring flowering plants from the beds, dividing and planting in the reserve border for next year. A partially shaded position is best for these subjects through the summer. Plant in rows, a foot apart, and six inches from plant to plant in the rows. Asters, stocks, zinnias, and other hardy and half-hardy annuals, can be sown in the open ground now. Harden off those sown under glass, and plant as soon as possible. All the ordinary bedding-stuff ought to be in cradles out of doors. Plants of a tender constitution, intended for the decoration of the flower garden, must have free exposure to the air, to fit them for going out next month. Thin the buds of pinks, picotees, and carnations, and shade those intended for exhibition. Remove auriculas to a shady position, if not already done. Nip off the flower trusses as the flowers fade, unless it is intended to save seed, for seed-bearing weakens the plants. Trim up the grass verges, and mow and roll the lawn, to promote a close bottom, and give everything a fresh and bright appearance. The end of the month will be soon enough to begin bedding out.

GREENHOUSE.—Amongst the most attractive subjects available for the embellishment of this structure and the conservatory during the month are azaleas, aphelexis, chorozemas, ericas, show and fancy pelargoniums, and statices. Now that the frames are clear of the bedding-plants with which they have been filled through the winter, all small soft-wooded stuff should be removed to them; hard-wooded plants must have more light and air now they are growing freely. Azaleas and camellias require a warm, moist atmosphere when making their growth, and to have plenty of air directly it is made. Freely ventilate New Holland plants of every description, and attend carefully to the watering, and be particular that each has sufficient to moisten every particle of the soil in the pot. Shift and stop fuchsias and petunias; water them with liquid manure as they become pot-bound. Expose pelargoniums for a week or so after they go out of flower, and then cut back and shake out, and repot as soon as they are nicely started into growth.

STOVE.—A considerable proportion of the orchidaceous plants are now in flower, and every means, consistent with the health of the plants, must be adopted to preserve the freshness and beauty of the flowers as long as possible. A cool, dry atmosphere is necessary for this purpose. Shift those in the hottest house into the cool house, and those from the cool house into the greenhouse, where they can be shaded and kept close; for on no account must the plants be exposed to currents of air. Plenty of moisture at the roots and in the atmosphere will be necessary for growing plants. Put in cuttings of the ordinary stove plants, and shift on

those already rooted. Gesneras and other plants, intended for winter blooming, must soon have their last shift. Ventilate freely, and shut up early in the afternoon.

KITCHEN GARDEN.—Thin out all permanent seed-beds, such as onions, carrots, etc., and plant out broccoli, cauliflowers, cabbage, kales, etc., for the winter, before they are too much crowded. Sow scarlet-runners, dwarf French beans, beet, turnips, spinach, endive, and lettuce; the two last should be sown where they are to remain, to prevent their running to seed too quickly, as is the case when sown in beds and transplanted. Also sow marrow peas, and earth up and stick those already forward enough. Prick out the late sown celery, and make trenches, and plant out the earliest batch. Shade with a few branches of evergreens for a few days after planting, and supply with water.

FRUIT GARDEN.—Remove the runners from the strawberry-plants directly they push, if not wanted for layering, or the parent plants will soon be choked up with the young plants. Wash all the trees on the walls, and those trained as pyramids, frequently with the garden engine.

FORCING.—Vine borders inside must be liberally supplied with water, where the crops are swelling, and the atmosphere kept moist by throwing water on the paths, and sprinkling the beds and walls. Where the grapes are colouring, give abundant ventilation, and keep the atmosphere dry. The crops should be watched, and the border have a good soaking just before the grapes commence colouring, so that no more is required until that process is finished. Shift on young vines in pots, and help those bearing young crops with manure-water. Peaches, nectarines, cherries, and figs, swelling fruit, to have an increased temperature, with plenty of water at the roots, and a thorough syringing twice a day. Crops of these in a more advanced stage which are beginning to ripen, must have less moisture above, and more below. Cucumbers and melons require regular attention in stopping and training. Where the heat is maintained by means of hot manure, add fresh linings directly it begins to decline. The pines in the fruiting-house to have an abundance of atmospheric humidity, to enable the fruit to swell freely. Shift any young suckers that are pot-bound, and fill one of the frames lately emptied of bedding stuff with tan, and plunge these and other young successional in it, to give more room for large plants. Pines, in all stages, are now growing freely, and will need more water than heretofore.

PITS AND FRAMES.—Give all the air possible to vegetable marrows, tomatoes, ridge cucumbers, and chilies. It is a capital plan, where any of these subjects are required early, to shift them into eight-inch pots, and keep them growing until the time arrives for planting out.

HORTICULTURAL AFFAIRS.



THE ROYAL HORTICULTURAL SOCIETY held two meetings during the past month. The first was devoted to novelties, and the second to Auriculas, Rhododendrons, Greenhouse Azaleas, and Orchids. Amongst the most interesting and valuable novelties presented at the first meeting, held on the 1st ult., were, Cyclamens, *Royal Purple*, *Rose Queen*, and *Crimson Gem*, three splendid varieties from the gardens of H. Little, Esq., Twickenham; *Rose Duchess of Edinburgh*, a fine light hybrid perpetual, from Mr. Bennett, of Stapleford, Wilts, and *Viceroy*, the *Bride*, and *Purpurea*, three beautiful bedding Primroses from Mr. R. Dean, of Ealing. At the second exhibition, on the 15th ult., Auriculas were shown in splendid condition by Mr. C. Turner, Slough, Mr. James, Isleworth, and the Rev. H. Dombrain. The Alpine varieties, which have been wonderfully improved of late, made a beautiful display of colour, and were much admired by the general visitors as well as by the growers. Amongst the show varieties, Turner's Charles J. Perry, a magnificent new violet self, was staged in superb style by Mr. James; and Turner's Colonel Champneys, a fine grey-edged variety, sent out a few years since, was shown well by all the exhibitors, the examples from Mr. Turner being especially good. A fine bank of Rhododendrons was contributed by Messrs. H. Lane and Son, of Berkhamstead, and a good collection of specimen Clematis by Messrs. Jackman and Son. Orchids were well shown by Mr. B. S. Williams and Mr. Denning, gardener to Lord Lonsborough, and others, and presented an attractive appearance.

MR. WILLIAM PAUL'S ANNUAL EXHIBITION of Roses, Pictorial Trees, Geraniums, etc., will be held at the Crystal Palace, from the 16th to the 23rd of May, both days inclusive.

MR. E. W. BADGER'S PAPER ON POTATO DISEASE, read before the Midland Farmers' Club, has been published by Billing and Son, Livery Street, Birmingham.

ANTHURIUM SCHERZERIANUM WILLIAMSII, now being distributed by Mr. B. S. Williams, of the Victoria Nursery, Upper Holloway, appears likely to prove a most interesting and valuable acquisition. In habit of growth, and in the size and shape of the spathes, it is precisely the same as the species; but the latter differ in being of an ivory white, and present a very pleasing appearance when in contrast with the bright vermilion spathes of the extravagantly showy typical form, which is now becoming known under the popular name of the "Flamingo Plant."

THE MEADOW BANK ORCHIDS will be sold by auction on Wednesday and Thursday, the 6th and 7th inst. The collection is one of the finest in the United Kingdom, both as regards its extent and the healthy condition of the plants of which it consists, and bids fair to be one of the most important events of the season.

THE COLORADO POTATO BEETLE was introduced to the notice of English readers under a wrong specific name, and M. Gustave Heuzé writes to the *Journal d'Agriculture* to say that its proper name is *Doryphora decemlineata*. It is so called from the ten dark lines or bands on the wing-cases, five upon each, by which it may be distinguished at a glance from other allied species.

APPLE REINETTE DU GRAND-DUC will probably prove to be a desirable variety, and worth introducing to English gardens. The *Journal d'Agriculture* reports that glowing accounts are received from the Austrian School of Horticulture and Viticulture at Klosterneuburg (Lower Austria) of this apple. It is stated to be remarkable for the freedom and rapidity of its growth, even in the worst soils, its extreme productiveness, and the very superior quality of the fruit.

AN EXHIBITION OF CLEMATIS will be held by Mr. Noble in the conservatory in the gardens of the Royal Horticultural Society, during the current month. A large number of new varieties, as well as those already in commerce, will, we understand, be represented. The exact date is not yet fixed.

THE KEW MUSEUM has been recently enriched with a collection of robes or dresses from Tahiti, which was presented by different members of the royal family of Tahiti to the Duke of Edinburgh during his visit to the Pacific in 1869. These dresses are all made of Tapa cloth, the prepared bark of *Broussonetia papyrifera*. Each consists simply of an oblong piece, with a circular hole cut for the head to pass through. They are trimmed most elaborately, one being entirely covered with

long strips of the very thin cuticle of the leaves of the Cocoa-nut Palm, part of which is simply bleached, and the other part dyed blue, the whole having a very pretty effect. The other dresses are stamped on the Tapa cloth surface with Nature-printed Ferns, and ornamented with rosettes and a kind of gimp of various patterns, made of the cuticle of the young leaves of the Sugar-cane; some of the dresses are also edged with a deep fringe made of the fibre of an Hibiscus.

THE WEST OF ENGLAND ROSE SHOW will be held in the Shire Hall, Hereford, on Wednesday, July 8. The schedule is framed in a liberal manner, and upwards of £150 will be offered in prizes.

PRIZES FOR NEW FRUITS.—From the *New York Tribune* we learn that the Assembly of Iowa has appropriated £200 for the best New Apple that will keep in good condition until after April 1, and for a superior Plum improved from native stock, the same to be a variety not now in existence, and superior to any in hardness, productiveness, and quality of fruit. The seedlings must be exhibited from year to year before the State Horticultural Society, and the premium is to be awarded in 1886 by a competent committee appointed by that association.

THE NEW ALEXANDRA PALACE is progressing rapidly, and the two gables that remain of the old building form the end walls of a gigantic conservatory, the roof of which is nearly completed. From what may be seen in the plant-houses, it may be judged that the great conservatory will be quickly furnished with effective material, for many kinds of climbing plants are growing freely in large pots, and are trained carefully up the rafters to be ready for planting out; while of palms, tree-ferns, rhopalas, cordylines, and such like, there are many noble specimens that promise to make a picture when they are in their places. One of the new features is a Japanese village and garden, now in course of construction by Japanese workmen. It is expected that the building will be opened on the 24th of June.

MESSRS. JOHN WATERER AND SONS' EXHIBITION OF RHODODENDRONS will be held in the garden of Russell Square during the month of June next. The square is one of the largest and best kept in London. Its position is central, and its ample approaches render it peculiarly suitable for a display of this kind. Messrs. Waterer inform us that the exhibition will be on a very large scale, and for the most part will be composed of new varieties, chiefly of rhododendrons which have not been hitherto exhibited. The fame of the firm is a guarantee that the exhibition will constitute a prominent success of the season.

THE MAMMOTH ROSE-TREE OF SANTA ROSA is, we think, of sufficient importance to justify its being noticed in these pages. This immense rose-tree, now clothing the cottage of a Mr. Rendall, of Santa Rosa, is an example of our old friend Lamarque, one of the finest of noisette roses. It covers an area of 400 superficial feet, and in due season is fairly loaded with flowers. Indeed, so profusely does it bloom, that it has had no less than 4000 fully expanded roses and 20,000 buds at one time. It appears to have been planted fifteen years since, and so vigorous has been the growth from the first, that it now extends over the roof of the house, and when in bloom presents a magnificent sight.

DAHLIA ARBOREA, of which a special offer is made by Messrs. Huber and Co., of Hyeres, in company with their usual stocks of acacias, palms, cannas, etc., is a noble tree-like plant rising seven feet high, and producing flowers that in some degree resemble those of *D. imperialis*, but are of a bluish or pale purple colour. When grown in the conservatory it flowers in December, requiring for its full development no more heat than suffices to protect the plant from frost.

THE DOUBLE POINSETTIA, which has recently been introduced to the United States of America, is unquestionably a most valuable acquisition, and in time will probably take an important position amongst stove plants, suitable for growing in quantities for decorative purposes. The flower heads are described as being of large size, forming crowns fifteen inches in diameter, and nine inches and upwards in depth. Several new forms of *Poinsettia pulcherrima* have been introduced to English gardens within the last eighteen months; the variety known as Major being undoubtedly the best of them.

TO CORRESPONDENTS.

FERNS.—*E. C. M.*—The gymnogrammas cannot be grown successfully in a sitting-room, for they would not have sufficient warmth. *Adiantum farleyense* also requires more warmth, and a more genial atmosphere than would be possible in a room.

POTATOES.—*Amateur.*—Your soil must be most unsuitable for potatoes, for the varieties alluded to in your letter, although not really first-class in quality, are not usually so bad as represented; they are remarkable for their productiveness; and where quantity is of prime importance, they can be recommended. The coping should be removed from the wall when all danger from the frost is past.

RAISING SEEDLING CLEMATIS.—*F. W.*—The flowers of clematis are hermaphrodite, that is, the male and female organs are contained in the same flower. If you examine the flower narrowly, you will observe a bunch of thread-like appendages in the centre of the flower; these are the stamens or male organs; and in the centre of the cluster of stamens you will see several small white threads, which are the female parts. If you dust the pollen upon these you will have no difficulty in obtaining plenty of seed. Watch the seed and gather as soon as ripe. If the seed is ripe early enough sow in the autumn; if not, sow the following spring in light soil, such as loam, leaf-mould, and a little peat. When the young plants are up, pot them into small pots, and treat in the ordinary way. Young half-ripened side-shoots will strike readily taken off with a heel and kept close, with the advantage of a little bottom-heat. Layering is best done in July and October; select shoots that have finished their growth, cut them partly through in a slanting direction close under a joint, and fasten them in the pot with a stout peg to keep them in their place; put a little sand round the cut part to facilitate the rooting process.

PLANTS FOR RUSTIC BASKETS.—*G. E.*—The following are the most showy and interesting plants for rustic baskets of a large size, they will all bear full exposure to the sun without injury: *Antirrhinum linariæfolia*; *Campanula Barleri*; *Convolvulus mauritanicus*; *Crassula procumbens*; *Disandra prostrata*; Ivy-leaved geraniums; *Linaria cymbalaria*; *L. alba*; *Lobelia speciosa*, and others; *Lysimachia nummularis*; *Mikania scandens*; *Nierembergia gracilis*; *Petunias* of sorts; *Polygonum complexum*; *Saxifraga sarmentosa*; *Sedum Sieboldi*; *Sibthorpia europæa*; *Verbena Maonetti*; *Vinca elegantissima fol. variegata*; variegated Ivies, *Hedera latifolia maculata*, a beautiful and distinct ivy; variegated leaved Strawberry; *Eccremocarpus scaber*; *Calystegia pubescens flore-pleno*; *C. pubescens simplex*; *Cobea scandens*; *C. foliis variegatis*; *Lophospermum Hendersoni*; *L. scandens*; *L. spectabile*; *Maurandya alba*; *M. Barkleyana*; *M. kermesina*; *cerulea*; *Pylogine suavis*; *Rhodochiton volubile*; *Tropeolum canariense*; *T. Passiflora elegans*.

RHODODENDRONS IN POTS.—*M.*—As they have done flowering supply them liberally with water and keep them in the shade from this time till they have set their buds for next year's bloom; then let them have sun morning and evening, but be shaded from the midday heat, and keep only moderately moist. A little weak liquid manure will benefit them while they are in full growth. As to re-potting or turning out, that must depend upon their condition. If they want more pot-room, one or the other must be done.

RED FLOWERS ON CUPRESSUS LAWSONIANA.—*R. Williams.*—The brilliant appearance of the tree is the result of its abundant production of male flowers. There are few trees so beautiful as this *Cupressus* is when smothered with these flowers, and they have been quite common this season.

MIGNONETTE CULTURE.—*G. M.*—Sow the mignonette any time this month, on a bed liberally enriched with rotten dung; when the plants are up, thin them to six inches apart, and a fortnight after thin again, so as to allow from nine to twelve inches between them throughout. Give plenty of water morning and evening in dry weather; and before it comes to bloom nip out the centre of each plant, and very soon the side shoots will touch each other all over the bed; after which, continue to water as needed. You will thus have as good a bed as mignonette will make. For pots and boxes, sow where it is to bloom, in a mixture of rotted turf and cow-dung, one-third of the latter to two-thirds of the former. Give plenty of

May.

water, plenty of air, and plenty of sun, and nature will do the rest for you: If transplanted, it rarely comes to any good except in very expert hands.

BELLADONNA LILY.—*Miss H.*—The beautiful *Amaryllis Belladonna* will thrive in any rich, light, sandy soil well drained. From this time, if in a pot, leave it alone till July, then repot it in a mixture of peat, leaf-mould, loam, and old cow-dung, and give regular supplies of water till its leaves have been matured, and then it should be allowed to go rather dry, and be kept at rest till July again. The best place for it is on a dry border, near a wall, where it will flourish for years if preserved from injury, and in autumn produce its exquisitely-beautiful amaryllis-like blooms.

PLANTS FOR FILLING BASKETS.—*Lady Subscriber.*—The following subjects are all most useful for filling hanging baskets. *Senecio Mikania* does well to hang down in festoons, but it will climb freely. A pretty thing called *Polygona suavis* is a good companion to the *Senecio*. It is a slender spare-leaved twiner, which not only trains itself but throws out tendrils. The leaves are dark-green, ovate, and serrated, and the flowers come in the axils of the leaves. They are creamy white, small, and inconspicuous, and therefore this must not be adopted as at all striking as an ornament. Trained down the sides of a hanging basket it is peculiarly graceful, and its flowers emit such a sweet and powerful odour that a single plant is sufficient to scent the atmosphere of a large conservatory. *Tradescantia zebrina* makes a beautiful object when grown on a block mossed over and trained down. It is also a good plant to mix with light-foliaged creepers planted round the margin of the baskets; its leaves are dashed with crimson and purple lines on a dark green ground, stems crimson, and flowers pink. Though a stove-plant, it does well in a warm greenhouse, or conservatory. *Thunbergia alata* and *T. aurantiaca* are charming things for dark-coloured baskets, producing abundance of their neat yellow and orange blossoms all the summer, and if sown early come well from seed. For planting out to run over a trellis or bank out of doors, few things are more elegant than the Chinese Yam, *Dioscorea batatas*, with its shiny heart-shaped leaves, and pretty sweet-scented blossoms. *Ipomea hederacea* is another of the good things to train round the sides of a large basket; its fine ivy-shaped leaves and profusion of blue flowers give it great distinctness of character, and if its roots are confined it flowers sufficiently without attaining to a rank and unmanageable growth. *Loasa aurantiaca* may be entered as a desirable half-hardy annual to hang down in six-foot ringlets, with plenty of orange-coloured blossoms. For the centres of large vases nothing can equal pyramidal Fuchsias, and indeed a set of fuchsias of sizes suited to the vase, ranging from dwarfs at the edge to a tall pyramid in the centre, will often prove better planting than the most fanciful mixtures that can be devised. What a splendid thing for a vase is *Farfugium grande*, laying its bold blotched leaves over the soft rim of a stone vase, or filling a basket of moss or hazel-rods! *Cineraria maritima*, the silver-frosted plant, never looks so well as when grown to a good size in a pot, and dropped into a wicker or bark vase.

CAMELLIAS NOT BLOOMING.—*B. W.*—As you have not furnished us with the necessary details, it is impossible for us to advise you so clearly as we should wish. Examine the plants and see if the roots are healthy, and have established themselves in the soil you potted them in last year. If they are not well established, we should advise you to take them out of the pots and remove the whole of the loose soil, and repot in a mixture consisting of two parts good fibry loam and one part peat, and a moderate amount of silver sand; use clean pots, keep them close for a time, and syringe regularly overhead. Attend to the plants regularly when they are placed out of doors for the summer, for careful management is as important during that period as when they are indoors. More camellias are ruined every year from this cause than all others put together.

LAWN.—*F. Notts.*—Nitrate of soda or phospho-guano may be applied at the rate of two to three pounds to every square rod of ground, or, say to every thirty square yards. The nitrate of soda is cheap, and produces an effect immediately. The dressing, to prevent its turning the grass brown, should be spread with care during rainy weather, or when rain is expected.

THE NEW EDITION OF MR. HIBBERD'S ROSE BOOK has now been delivered to the trade, and copies can be supplied by order of any bookseller, price 6s. In case of difficulty, the publishers, Messrs. Groombridge and Sons, London, will forward a copy, post-paid, on receipt of a remittance for the amount.



PASSIFLORA KERMESINA.

NOTES ON PASSION-FLOWERS.

(With Coloured Illustration of Passiflora Kermesina.)

BY GEORGE GORDON.



PASSION-FLOWERS comprise a large number of free-growing plants of a scandent habit, differing considerably in the colour of the flowers and relative hardiness, but alike possessing considerable value for training up pillars, and over the roofs of plant-houses. Some require a stove temperature, others again may be cultivated successfully in the greenhouse or conservatory, and a few are sufficiently hardy to admit of their being grown against a south wall out of doors. The subject of the present illustration belongs to the section requiring the temperature of a stove, and is unquestionably one of the most beautiful of the numerous species in cultivation.

Passion-flowers are mostly of large growth, and, although they may be grown in structures of a medium size, they are best suited for houses in which sufficient space can be allowed for their full development. In lofty houses they are of immense value for draping columns and forming festoons between the girders, and in structures of smaller size they produce a very pretty effect when trained close under the rafters, and the lateral growth allowed to hang down in a natural manner. They are not suitable for houses in which it is necessary to frequently stop the side-shoots, to prevent their interfering with the growth of the other plants, for when pinched back at intervals, a mass of shoots and few flowers are the result. In the *FLORAL WORLD* for October, 1868, an article on the Cultivation of Passion Flowers appeared, in company with a plate of the brilliant *Tacsonia Buchanani*, and it is, therefore, hardly necessary to speak of the cultivation of these plants in detail.

It may, however, be mentioned incidentally, for the assistance of those who have not the volume for 1868 to refer to, that all the species require abundant space for the roots, as well as for the head. They should, therefore, be planted in a border of good soil, or where that cannot be done conveniently, put in pots, tubs, or boxes of a comparatively large size. In preparing the borders, place a moderate layer of broken bricks underneath, and when they are grown in pots, or other receptacles, they require a drainage of crocks in much the same manner as other free-growing subjects. With the assistance of a thorough drainage, it will be possible to supply them most liberally with water throughout the growing season, without the slightest risk of the soil becoming sour, owing to the superfluous moisture being unable to escape so quickly as could be desired. Over the drainage place a layer of some rough material, and then fill in with a mixture of four parts mellow turfy loam, and a part each of thoroughly decayed manure and leaf-mould. This compost will also be in every way suitable for plants grown in

pots, and the only difference in preparing it will be to break the loam up rather finer. Although planting out is strongly recommended, it is not desirable to put out small plants in borders, where they will be a considerable distance from the glass, and also crowded up with other things, because of the risk of their not making a vigorous growth from the first. Therefore in the case of plants purchased now, and the present moment is most favourable for buying, put them in pots eight or nine inches in diameter. They can then be placed in a position most suitable for acquiring strength, and in the autumn, or early in the spring, they can be planted out with every prospect of their doing well. Or they can be put in large pots or boxes underneath the stages, as may be the most convenient.

The plants will require pruning annually, for the purpose of admitting the light freely to the plants underneath; this should be done late in the autumn. Such shoots as are required for extension purposes, or for taking the place of others removed, may be left one half or two-thirds of their length, but the others should be pruned back to the first or second joint. When they commence to make new growth in the spring, remove all but one shoot from each spur, unless more wood is required for a special purpose. The remaining shoot must be allowed to grow unchecked, for the flowers do not make their appearance until the shoots have attained a considerable length, and by stopping them the production of flowers is most effectually prevented.

Early in the spring top-dress the borders with a compost consisting of equal parts manure and loam, but previously to the application of the top-dressing remove a few inches of the surface soil. The plants in pots may, about the middle of January, be lifted out carefully, the ball of soil reduced about four inches all round, the roots pruned, and after the drainage has been properly arranged, be returned to the same pot again, and the space filled in with fresh compost. By this system the plants can be kept in the most robust health for a number of years without increasing the size of the pot. Specimens in tubs and boxes may also be managed in precisely the same manner. The plants will require most abundant supplies of water during the summer months, when they are growing freely, and moderate supplies at other seasons of the year. They should also be syringed occasionally, provided it can be done without injury to the other inmates of the house.

The beautiful *Passiflora Kermesina* is one of the best stove species at present in cultivation. The flowers are rich in colour and wonderfully attractive. It succeeds admirably in a moist stove, and, with ordinary good management, it produces its flowers in abundance throughout the summer season, frequently continuing in bloom until quite late in the autumn. Other good stove species of unquestionable merit are *P. Bonapartea*, *P. edulis*, a white flowered species of no great beauty, and only worth growing where its fruit is appreciated; *P. fulgens*, *P. racemosa* (syn. *princeps*), a very beautiful and attractive species; *P. quadrangularis*, a large grower, producing handsome flowers and large fruit, the latter popularly known

as the "granadilla," and by some much appreciated. To insure fruit, the flowers must be fertilized artificially.

The most attractive and useful of the greenhouse kinds are—*P. cœrulea racemosa*, a very free-flowering form of this well known and comparatively hardy species; *P. hybrida floribunda*, a most handsome hybrid; *P. Impératrice Eugénie*, a very beautiful hybrid, especially adapted for planting in conservatories, frequently illuminated with gas, as burnt air does not injure it in any appreciable degree. It is also capable of resisting the deleterious effects of smoke and dust, and is, therefore, better suited for conservatories in towns than any of the others. *P. Lawsoni*, *P. palmata*, and *P. Sheppardi* are also worthy of a place where space can be found for them. For outdoor culture *P. cœrulea* is the most desirable.

The Tacsonias, which are nearly allied to the Passifloras, and thrive under the same management, are mostly very beautiful. The best are, *T. Buchananii*, flowers brilliant scarlet, produced freely on small plants; *T. floribunda*, another beautiful kind, requiring, like the preceding, a stove temperature; *T. exoniensis*, bluish mauve, a fine free-flowering hybrid of recent introduction; *T. manicata*, flowers scarlet, useful for cool houses; *T. mollissima*, a very strong grower, with pink flowers, useful for very large houses; *T. Van-Volxemi*, one of the most beautiful of conservatory climbers, the flowers are of the most brilliant red, and borne on slender stalks of a great length; indeed, the stalks are so slender, that the flowers have the appearance of being suspended by threads. The flowers are borne in great profusion, and established plants produce a large number of its oval-shaped fruit.

The new *T. insignis*, figured and described in *Bot. Mag.*, t. 6069, is one of the very finest species belonging to the genus, and in time will become as popular as the well-known *T. Van-Volxemi*. The flowers are of a gigantic size, the sepals rich violet crimson, and the petals reddish crimson. The ample foliage is of a bright glossy green, giving the plant, even when not in flower, a very attractive appearance. It was raised by Mr. Anderson, gardener at Sowerby House, Hull, from seed received from South America some years previously.

SUMMER MANAGEMENT OF GREENHOUSE PLANTS.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



HEN azaleas, camellias, heaths, and a few other hard-wooded plants, are grown in structures specially devoted to them, as in the case of big gardens and trade collections, it is, perhaps, advantageous to keep them indoors during the summer season, but it is very certain that in the case of mixed collections it is in every way better to place them out of doors during the summer. In doing this a certain amount of caution is needful, so that they may not be exposed to the

full action of the weather before they are able to bear the exposure without injury, and it is also desirable that the amateur should be thoroughly impressed with the conviction that the plants require just the same amount of care and attention as when under glass. I would lay particular stress upon the importance of attending to the plants regularly during the time they are out of doors, because of the immense amount of mischief that is done annually through the prevalence of the belief that the plants are then able to take care of themselves, or at least that they do not stand in need of the same constant and careful attention as when under glass.

During this month the majority of the hard-wooded plants may be removed out of doors, and in doing this, remove those first which have completed their growth. A moderately open situation should be selected, so that the plants may enjoy full exposure to the light and air to insure the thorough maturation of the wood. A partially shaded position is perhaps preferable to one in which the plants are fully exposed to the sun all day, but provided proper attention is paid to supplying them with water, sunshine will do them no harm. An exception must be made in favour of camellias, which require shade for the preservation of that fine deep glossy green colour of the foliage which so highly enhances their general appearance.

Previous to placing the plants out of doors, make up a bed for them to stand upon of coal-ashes not less than four inches in depth, for the purpose of keeping the worms out of the pots. This is most important, for if the worms once find their way into the pots, they will contrive to choke up the drainage before they can be ejected. When this happens, the plants must be turned out of the pots, and the drainage set to rights, or the soil will become sour, and the plants assume a sickly appearance, through the roots perishing. If the plants are few in number, the pots may be placed upon planks or tiles, whichever may happen to be the most convenient. Large pots containing specimens should be stood upon three bricks to leave a hollow space underneath, for the double purpose of allowing a current of air to pass underneath, and the superfluous moisture to pass away more quickly. Plunging the pots in the case of delicate-rooted subjects, such as those to which special attention is now directed, is not desirable for reasons which could be readily explained, were it needful to do so.

After they are arranged in their summer quarters, they should be examined every day, and all that are moderately dry supplied with water. In watering plants potted in a compost consisting principally of peat and sand, extra care is necessary. The water soaks into the ball very slowly, and inexperienced cultivators frequently suppose that the plant has been supplied with a sufficiency before it has had half enough. It is a golden rule to apply sufficient to soak through the bottom of the pot, and if one application is not enough, repeat it as many times as may be necessary. If this rule is not acted upon, the upper half of the ball will be soaked thoroughly, and the other half become dust-dry, and in a very short time the plants will either perish outright, or linger on in an unhealthy state. When the lower half becomes dust-dry through careless watering,

the only safe course is to immerse the pots in a vessel of water, and allow them to remain until the whole of the ball has become thoroughly moistened, and the air-bubbles ceasing to rise to the surface will afford a good indication of this being accomplished. Plants that have become dust-dry should also be immersed in the same manner. The state of the soil on the surface must not be implicitly relied upon as affording an indication of the state of the soil lower down. The surface soil generally becomes dry first, but frequently owing to rains, syringing, or other cause, it will be found moist, whilst a few inches below the surface it will be quite dry. The sound of the pot is perhaps the best test, for when the soil is dry, it will have a ringing sound if rapped on the side with the knuckles, whilst if wet, the sound will be dull and heavy.

During periods of hot, dry weather, a light sprinkle overhead in the evening will be beneficial to all the plants, with the exception of the aphelexis and heaths. Camellias may have a more liberal syringing than the other things. They also require more water at the roots; and if the drainage is in good order, and the plants in perfect health, there will not be much danger of their having too much, provided of course it is supplied within reasonable limits.

One of the causes of camellias shedding their buds prematurely is watering them irregularly; or, to speak more plainly, saturating them for two or three weeks, and then allowing them to suffer from drought for several days. By careful watering during the autumn and winter, the amateur will be taking the most effectual steps for preventing the dropping of the buds, of which so much is heard every autumn, and for this reason I would strongly recommend a careful perusal of the foregoing remarks.

PRIMULA CORTUSOIDES.

BY J. E. SAUNDERS, ESQ.



NOTWITHSTANDING all that has been said in praise of the stately-growing *Primula japonica*, I question whether it is equal to the lovely *P. cortusoides amœna*, and other varieties of the species. Certainly it does not surpass it in any respect, and as the varieties of both typical forms are so remarkably distinct and beautiful, the best course will be to grow a proportion of each. This year I have had glorious masses of several of the varieties of *Cortusoides*, and as they were so much admired, it has struck me that a few words in reference to them would prove useful to amateurs like myself.

Primula cortusoides is quite hardy, and in suitable positions out of doors, such as a shady ledge on the rockery, where it does not suffer from drought, it grows rapidly, and produces a fine display of flowers during the spring. The several varieties are also hardy, but, owing to the large size of the flowers, they are not so suitable for out-door culture, as the flowers are liable to injury from the rough weather frequently experienced when in bloom. To have them in

perfection, they require the protection of a cold frame, and as they can be most successfully cultivated in pots, that is the best way of growing them. When in bloom they can be brought into the conservatory, where, if placed in a shady position, they remain in a beautiful fresh condition for a considerable time.

Some five years since, I purchased half-a-dozen thrifty plants of *P. cortusoides amœna*, and, as they have been grown on without division, they are now really splendid specimens. Since then I have added *P. cortusoides amœna alba*, which has white flowers, and *P. cortusoides amœna lilacina*, a lovely thing, with flowers of a beautiful shade of mauve lilac. These are doing well, but they are not so large, for the plants were smaller, and I have not had them the same length of time. They are all managed in precisely the same manner. After they go out of bloom in the spring, they are removed from the conservatory to a cold frame in a shady position. They are regularly supplied with water, and freely exposed to rains. In June they are placed out of doors for the summer, a shady position is selected for them, and they are watered as often as may appear desirable. As they are in a comparative state of rest, they do not require so much water as at other seasons of the year. Nevertheless, the soil is not allowed to become dust dry. Early in September they are repotted, the larger specimens are turned out of the pots, the ball of soil reduced, and shifted into clean pots of the same size; the smaller plants are shifted into pots one size larger. In reducing the balls the roots are injured as little as possible, and a few of the longest are trimmed slightly. By this system I have been able to renew a considerable proportion of the soil annually, without increasing the size of the pot beyond a certain limit. They appear to thrive in a rather rich and open compost prepared for them—a mixture consisting of leaf-mould and thoroughly-decayed manure a part each, and turfy loam three parts—and in this they grow with great vigour. As strong plants can be purchased for a shilling or so each, the varieties mentioned above are especially suited to the requirements of the amateur with limited means.]

ANTHURIUM SCHERZERIANUM.

BY B. S. WILLIAMS,

Victoria and Paradise Nurseries, Upper Holloway.



THE beautiful *Anthurium Scherzerianum* deservedly occupies a high position among flowering plants requiring a stove temperature. And well does it deserve this distinction, for it is alike remarkable for its neat yet graceful habit, and the glorious appearance it presents when well furnished with its brilliant-coloured spathes. This species differs, as possibly many readers of the FLORAL WORLD are aware, from all the other Anthuriums. Instead of the huge shield-shaped velvety leaves which constitute the chief beauty of such kinds as *A. magnificum*, which is so frequently met with in competitive groups of orna-

mental-leaved plants, and the newer *A. crystallinum*, which was exhibited so much last year, it has deep green strap-shaped leaves, coriaceous in texture, about two inches in width, and from fifteen to eighteen inches in length. These somewhat gracefully arching leaves form, as the plants attain a considerable size, elegant tufts, and from the centre spring numerous banner-like spathes, which are of the most intense scarlet, producing, in combination with the deep green foliage, a most brilliant effect. It is undoubtedly one of the most useful of stove flowering plants, both for exhibition purposes and home decoration; and when I was preparing the first edition of my work on "Choice Stove and Greenhouse Plants," I was so impressed with its value, that I selected it in preference to all other plants for the coloured plate facing the frontispiece; and when the second edition of the work was issued last year, I saw no reason for substituting any other plant for it. It is, in fact, a plant which all amateurs who possess the convenience of a plant stove should have, for, unlike many other plants that are remarkable for their great beauty, it is comparatively easy to cultivate in a successful manner. Of late it has acquired a high degree of importance; and at the sale of Mr. Micholl's collection of plants, at Southgate House, the other day, the large specimen which has so often been shown with remarkable success by the able gardener, Mr. Baines, realized the handsome sum of £66. Notwithstanding the high price which a large specimen will command, it is not an expensive plant; and, as will be seen by my catalogue, we are able to supply thrifty plants for five shillings each; and these with the good management, such as I shall recommend, will, in the course of a few years, attain a large size, and form one of the most attractive features in the plant stove. It produces its spathes at various times of the year, principally in the spring; and by removing the plants to a cooler house, the temperature of which is comparatively dry, they will remain in perfection at least four months.

It is of a naturally free habit, and requires a well-drained pot, an open compost, and liberal supplies of water during the growing season. The pot should be rather large in proportion to the size of the plant, and filled to about one-third of its depth with clean crocks of a moderate size. Over these spread a layer of sphagnum moss, and the pot will be ready for the plant. A mixture of rough fibrous peat and sphagnum moss is the most suitable soil, as it affords the plants ample sustenance, and at the same time enables the thick fleshy roots to run freely. In shifting plants from one pot to another, the crocks must be carefully removed from the bottom of the ball, and a portion of the old stuff from the outside picked out when it can be done without injury to the roots. The new stuff will require to be pressed rather firm. As, like other species, it luxuriates in a high temperature and a humid atmosphere, it should have a warm, moist corner in the stove at all times, excepting when in flower. It must also have liberal supplies of water at the root, excepting when in a cool temperature, and then the supply of water must be less plentiful.

Recently I have been able to introduce into cultivation a variety

with white spathes, which has been named *A. Scherzerianum* var. *Williamsi*. This I have good grounds for believing is a most distinct and valuable novelty, and will undoubtedly prove a capital



ANTHURIUM WILLIAMSI.

companion to the specific form. In habit and general characteristics it is the same as the species, the only difference being in the colour of the spathes, which are ivory white, instead of scarlet.

THE POSTULATA.



R. HONEY, of 263, Regent Street, has provided for the "home of taste" a very neat and useful kind of cover for flower-pots, which he has named "the Postulata." It consists of a cardboard box, which may be folded to lie flat when out of use, and a pan of zinc which fits it closely, and prevents communication of damp to the



table. The combination is as ingenious as it is simple, and the finish of the whole is extremely elegant, the boxes being variously coloured and decorated, and adapted for the hall, the sideboard, or the dinner-table. We recommend those of our readers who employ plants for decoration within doors to look after the Postulata, for it will render them desirable service.

WALKING ROUND THE GARDEN.



THE first step out of the dull routine of winter life is to take a walk round the garden. There comes a sunny day in March, the birds tune up for canticles, and the borders burst into flames, as the strong sunshine opens the crocuses, while the winds that have been howling round the corner and down the chimney become calm and candid, and blow softly and steadily into your face in the pleasant way that a friend would speak to you. You must walk round the garden, for if you stay any longer in the house, you will have the fidgets. For several years I followed this excellent plan, and it paid well. I took my friends in turn, and walked round the garden with them; and being an enthusiast in matters horticultural, I always made as sure as possible of a long stay with one friend who was rich in the old-fashioned flowers. We used to eat, and drink, and talk, as men who meant it, and the lady of the house appeared to be never so happy as in ministering to our comfort. When we had made our morning walk, we used to creep into the house-yard, and tap on the window of the store-room, and the hostess instantly threw up the hatch, and with her rosy face rippled with smiles, provided delicious cups of beer and small eatables, so that we used to regard the window as our luncheon-bar.

The best entertainment this garden afforded—that is, when we were tired of discussing politics, morals, literary criticism, and the merit and meaning of last Sunday's sermon—consisted in our systematic review of the hardy border-flowers, for here was an immense collection, comprising many of the grandest plants in the class known to cultivation. In those early spring days we were feasted on crocuses of many kinds, in great glittering masses of orange, white, lilac, purple, and intermediate shades; and these, with all their splendour, did not eclipse the immense collection of primroses, single and double, comprising flowers of all colours, rich mellow purple, intense crimson, pure white, soft creamy yellow, and many shades of lively rose. We saw the day lilies rising in conspicuous tufts of tender green, the helleborus still displayed a few of its flowers, the Italian coltsfoot diffused its powerful spicy odour, the shady shrubby-borders were smothered with violets of half-a-dozen colours, the double-white being particularly sweet and elegant; and of hepaticas—oh! I never could get beyond an empty exclamation over the hepaticas, for it is impossible that any garden in all the world could have shown such clumps, and such colours, heavenly blue, crimson, amethyst, purple—I must begin and end with oh!

The place was yet more rich in plants, of the same hardy nature, of kinds less known. There were tufts of Alpine androsaces, with flowers that reminded one of costly jewellery, though no work of man's cunning could compare with them. Rare anemones, aquilegias, aubrietias, campanulas, corydalis, cyclamens, dianthus,

drabas, epimediums, gentianas, irises; it was a feast of reason and a flow of soul. Plants that were not in flower pleased us almost as much as those that were. We saw the tender sprays of the woodruff rising under the thorn-trees, and knew that when croquet days began there would be vast sheets of its elegant snow-white flowers for sweetening the wardrobe, or conveying your blessing into the heart of a distant friend, by putting a sprig of it into a letter. The crimson-tinted shoots of the pæonies always gave a new jerk to our conversation, for here were thirty sorts at least, and, when in flower, the plants stood as tall as a man, flaunting in the sunshine flowers as large as soup-plates, and of all colours, from the ruby of port wine to the tempting cream colour of a syllabub. There was a special lily garden that would have delighted King Solomon, who, let us hope, was a genuine fancier in the way of lilies, though, poor man, he knew nothing of the glorious lilies we have lately obtained from North America and Japan, for those lands were as sealed books to him.

An interruption to the customary spring walk round this garden resulted from an illness, which laid my friend low, and compelled his good wife to close the house for a season. Out of pure sympathy for him I took to my bed also, and we were both disabled for months, and, as regards the garden, lost a year out of our mortal lives. But the next spring we met as before, and, on comparing notes and looks, we found we were both considerably older, his fever had marked his face with crow's feet, and my rheumatism had taken the starch out of my spine, so that I stooped a little, and walked somewhat awkwardly. In our hearts, however, there was a darkness and a fear of a foreboding of something awful; for the garden had changed its aspect. A demon of destruction had passed over the place, and blight had followed in his trail. The glory of the place was gone, the work of patient years was undone!

But he knew more about it than I did, as of course he ought.

The collection had been formed and kept under my friend's eye, and all had gone well until months of illness threw all his affairs out of joint. The old gardener understood the care of these grand old hardy plants, which, to speak the truth, require no care at all, but suffer when care is bestowed upon them. But the old gardener grew discontented when the master disappeared; and when the mistress of the house could endure him no longer she sent him away, and put in his place a brisk young man, who had never seen a good collection of hardy plants, and, in fact, scarcely knew of the existence of such things as androsaces and epimediums. So the young man went to work—with no one to direct him—and with no warning voice as to the precious wealth hidden from view all the winter in the beds and borders of this glorious garden. And of course *he gave the borders a thorough good digging, and chopped the precious plants into mincemeat*, and made a hasty wreck of the work of years, in order "to make the place look tidy and neat, you know." It is quite common for people to say to me, "I cannot tell how it is, I cannot keep a few pæonies, and hepaticas, and Christmas roses, for I plant a lot every year, and yet never have any." I reply, "Perhaps

your gardener digs them up to make the place look neat and tidy." "Well, what are we to do—he must dig the ground, surely?" To that I answer with an emphatic "No." My friend has now trained his young gardener, and the collection is fast improving. When he last visited me, he saw in my garden a grand lot of Japanese ever-green shrubs thriving in a border of damp clay, on which the sun never shines. I told him one of the secrets of their success was my practice of strewing leaves amongst them in the autumn, for the ground rarely freezes under a coating of leaves, and as these shrubs begin to grow early, they should be kept as warm at the root as possible during the winter. My friend said, "I'll take a leaf out of your book;" and in the following autumn he had the leaves scattered over the borders, instead of being laid up in heaps in the rubbish-yard; and this practice greatly benefits the plants, and exercises a powerful charm to keep invading footsteps off the border. When you have secured plenty of the fine old hardy flowers, and they are in their places, prohibit, on pain of death, the insertion of spade or fork amongst them. The ground may indeed be "pricked" over with a very small fork, made for the purpose, in the month of April, when all the plants are above ground; but it should be done with tenderness—there must be a little love, as well as judgment, in the business.—S. H., in the "*Pictorial World*."

THE CULTIVATION OF THE AURICULA.

BY J. JAMES,

Head Gardener, Redlees, Isleworth, W.



EXHIBITIONS of auriculas recently held in London and Manchester, have proved pretty conclusively, if proof were needed, that these flowers, if not cultivated so extensively as they were twenty or thirty years ago, they have still plenty of admirers. These exhibitions did not, it must be confessed, bring out many new growers; but from the manner in which the stages devoted to the auriculas were crowded throughout the day, they demonstrated in the most forcible manner that there are still plenty of people who take an interest in them. As an old grower, like myself, it was especially gratifying to see the visitors pass the more showy groups with the view to obtain an early look at the auriculas, which, although very interesting and very beautiful, do not cut such a dash at an exhibition as the azaleas, rhododendrons, and other high coloured flowers, with which they are usually associated. I should certainly like to see more amateur growers put in an appearance at auricula shows, for I am well assured that no other class of plants will afford a greater degree of interest, or be cultivated with less expense. They are all perfectly hardy, or so nearly so that the protection of a cold frame is all that is necessary; and owing to the small space occupied by each

plant, even when fully grown, a goodly collection may be grown in a frame measuring twelve feet in length by six feet in width. They are, therefore, just the class of plants for amateurs with small gardens. There is no great outlay in providing structures, and no expense whatever in providing fuel. They are, it is true, rather difficult to cultivate; but when the amateur, by attention and observation, has become acquainted with their peculiarities, he will not experience much trouble with them. With a view to promote their culture more extensively than is the case at present, and to assist the amateur who has not met with so much success as he could wish, I have prepared a few notes bearing upon the most important in their management.

AURICULA FRAMES.—The first step in auricula growing is to provide a suitable frame, and I will at once proceed to speak of it. Now if we turn to the majority of the books which contain information on auricula culture, we shall find diagrams of most elaborate structures with ingenious contrivances for air-giving, shading, and facilitating the inspection of the plants. These structures cost a lot of money, and, in my opinion, are not wanted. The frames in which the plants I have exhibited at the London shows for some years past are grown, do not differ very materially from that of an ordinary pit, such as would be employed for bedding plants, with the difference that they are fitted with ventilators back and front. They stand three feet six inches in height, the walls are of brick, to a height of a little over two feet, and the remainder is of wood. The wood-work consists really of a wall plate, and a plate upon which the rafters carrying the lights rest, the two being joined together at each corner, and at intervals by uprights of wood. By this arrangement a space of nine inches or so is left, the entire length of the frame, both back and front; and to these openings we have shutters fitted, which can be closed at pleasure. These openings are provided for the purpose of admitting air without exposing the plants to the risk of being saturated with heavy rain, which, especially during the autumn, winter, and spring, is very injurious to them. Auriculas require abundant ventilation even in cold weather, for it is not so much the cold as it is the wet that they require protection from, and by these openings a free circulation of air can be maintained whenever ventilation is desirable. The amateur, commencing with a wooden box, would simply have to cut out a strip nine inches in width, and extending the whole length both at the back and the front, and then fasten them to the frame with hinges, and provide a button to hold them in their places when closed. The frames are filled to nearly level with the lower part of the opening with coal-ashes, the lower strata being formed with very rough material, so that the superfluous moisture can soak away quickly.

PROPAGATING BY OFFSETS.—The propagation of varieties is accomplished by separating the offsets when the plants have their annual repotting, and potting them separately in small pots. They require to be slipped off carefully so as to avoid injury to the main stem of the parent, for when a ragged wound is made there is a danger of the damp lodging in it and causing the stem to decay. They are

then potted and otherwise managed in precisely the same manner as the old plants, excepting that they are put in small or large 60's according to their size.

SEEDLINGS.—These are readily raised, but the amateur must not expect to obtain many first-class varieties from the seed of the shops. Even first-rate growers, who devote special attention to hybridizing and seed-saving, only raise a show flower fit for the stage occasionally, and therefore the amateur must not be disappointed if he fails in raising first-class flowers from purchased seed. The seedlings are not to be condemned altogether, for the flowers of a considerable proportion will be very pretty, and where the amateur can only afford to purchase two or three dozen named varieties they will help to fill the frame, and swell the collection until additions can be made.

Auricula growers differ in their way of raising seedlings, some raising in heat and some in cold frames. I prefer placing the seed-pans where the germination of the seed can be assisted with a genial warmth, because of the saving in time. But where it is not convenient to place the pans in a warm house, a cold frame will do very well. The seed-pans will require a good layer of crocks in the bottom, and then to be filled with a mixture of loam, leaf-mould, and sand. Press rather firmly, make the surface level, and after the seed has been sown regularly over the surface cover thinly with fine soil and silver sand in equal proportions. The soil must be kept moderately moist and in a shady situation; the customary pricking off into other pans must be performed as soon as it becomes necessary. As the seed is frequently a long time in germinating, the soil should not be thrown away hastily, for sometimes plants will come up after those which first made their appearance have been pricked off.

REPOTTING, which has to be done annually, is a very important point, and one to which the beginner should direct special attention. A simple compost, the advice contained in the books notwithstanding, is the most suitable, and the cultivator is not likely to lose so many plants as when the compost is prepared in an elaborate manner, and contains a large proportion of stimulating stuff. For ensuring a moderately robust growth and fair sized highly-finished flowers, a mixture consisting of three parts turfy loam, one part thoroughly decomposed cow manure, one part leaf-mould, and sufficient silver sand to make it feel gritty, is in every way suitable. If available a peck of night soil, not less than six or seven years old, and resembling in appearance ordinary garden soil, may be added to every barrowful of the prepared compost with advantage, but can be done without, and it must not be employed in larger proportions or in a fresher state than is here mentioned.

The middle of July is, I consider, the best time of the whole year for the annual repotting; some growers recommend the middle of a month later, but long experience has convinced me that the balance is in favour of the early potting. Auriculas are at the best very slow rooting, and as it is important they should be well established before the winter, there must be an advantage in affording them the longest time possible. In repotting, turn the plants out of the pots, carefully shake away all the soil from about the roots,

and shorten the thick fleshy roots, if they are of a considerable length, and not well furnished with small rootlets. Some of these roots will require shortening to about half their length, and others will simply require their tips to be taken off. The thick roots only need trimming, and as this is done to promote the production of fibrous roots, the latter must be injured as little as possible. Five or six inch pots, the exact size being regulated by the strength of the plants, are quite large enough. They must be thoroughly clean and well drained, the crocks employed for the latter purpose being of necessity clean also. A two inch layer of crocks will suffice to ensure an effectual drainage, and to prevent the fine soil mixing with the crocks, cover them with a layer of rough leaf-mould. In filling the pots, carefully spread out the roots, and press the soil moderately firm.

WATERING.—They will require careful and moderate watering until they are established, and indeed throughout the autumn and winter, for if supplied too liberally, the soil will become sour and the roots perish. At the same time, extreme dryness at the roots must be guarded against as being alike hurtful. When watered, they must have sufficient to thoroughly moisten the soil, and care taken to avoid pouring the water into the hearts, for if moisture is allowed to settle there, they will soon decay, and the plants perish. If this should occur at any time, place the hand over the soil, and turn the plant bottom upwards, to allow the water to drain away. As the plants commence to make new growth in February, increased supplies of water will be required, but even then, and during the early part of the summer the watering must not be overdone.

TOP-DRESSING.—They commence to make the season's growth in February, and as soon as it can be seen that they are making a move, top-dress with a mixture of cow-manure and loam. First remove the old soil to the depth of an inch or so, and then fill with the mixture, and press firm. In removing the soil, avoid stirring it deep enough to disturb the roots, which cannot well be done at that season of the year without injury to the plants.

SUMMER MANAGEMENT.—As they come into bloom remove them to a frame placed in a shady position, a north side of a hedge being preferable, as the hedge admits of a more free circulation of air amongst them than is possible when they are against a wall. By removing them to a shady position, the attention and labour required in screening them from the sun is entirely avoided. They are also placed under more favourable conditions for making a firm growth, as they enjoy the fullest advantages resulting from a free exposure to the light. The frame must be freely ventilated, and after the plants go out of flower the lights may be removed during the day altogether, but as they must not be exposed to heavy rains, the amateur who is away from home during the day will act wisely in contenting himself with ventilating the frame at the back and front in the manner already advised, or if the frame is not provided with these ventilators, the lights should be raised both at the back and the front on pieces of wood. A light shower, on a warm day during the summer, will be beneficial.

June.

WINTER MANAGEMENT.—The stock may remain in the summer quarters until October, when it must be removed to a frame placed in a light sunny position. The importance of careful watering has been already alluded to, and it now remains to be said that the frames must be ventilated freely throughout the winter. In frosty weather shut the ventilators, and during a severe frost cover with mats.

INSECT PESTS.—Greenfly is frequently troublesome, but it can be destroyed by dipping the plants in weak tobacco water, to which a very small proportion of soft soap has been added. A fine dry morning is selected for dipping, and in doing this the left hand is placed over the soil, the plant then immersed for a few seconds, and after it is taken out it is held bottom upwards long enough for the moisture to drain out of the centre. Decaying leaves must be removed at intervals, for if they remain until quite dead, there is a risk of the decay extending to the stem, and eventually killing the plants.

NEW CARNATIONS AND PICOTEEES.

BY JOHN WALSH.



DURING the last two years a very considerable number of really first-class varieties of these beautiful hardy flowers, were staged at the Metropolitan exhibitions, and as they are now mostly in the market, I think it advisable to offer a few remarks upon them, for the information of those readers who are interested in this class of subjects. Even in the most palmy days of these flowers, a really finer lot of flowers was never offered in any one season, as is the case this year. That is to say varieties which show such a marked improvement on those already in commerce, there is perhaps rather too many, but as they are all more or less good we can hardly grumble about the number, indeed we ought to feel gratified when it is taken into consideration, that the introduction of these varieties demonstrate in the most forcible manner possible, the fact that the taste for these flowers is reviving. All the varieties now offered will not be required in any one collection, even if there is no objection to the cost, and I have prepared a list from my notes taken at various times and places, as they were presented to public notice. This list includes none but the very finest and most distinct and beautiful, and to avoid occupying space unnecessarily, I shall mention those only which are worthy of a place in the most select collection, and pass the others by unnoticed.

From the Show Carnations I have selected six, as follows:—*Ajax* (Hextall), a fine purple flake, the flowers large, full, and smooth, the colour bright and well laid on, a fine back row flower. *Campanini* (Turner), a superb scarlet bizarre, flowers large and full, the petals smooth and well marked; a valuable addition to its class. *Isaac Wilkinson* (Turner), a fine crimson bizarre, flowers of full size,

the petals smooth and exceedingly well marked, the colours very bright and effective. *Mrs. Frederick Burnaby* (Turner), a beautiful rose flake, the flowers large and of grand form, the petals smooth, and the colour very soft and pleasing; a fine front row flower. *Mars* (Hextall), another fine scarlet bizarre, flowers large, full, and superbly finished, petals broad and smooth, colour bright and regularly laid on. *Superb* (Ingram), a beautiful scarlet flake, the flowers large, full, and of fine form, petals smooth, the marking bright and well defined.

From the Show Picotees I have selected eight as being in every way first class. The first is *Edith Dombtrain* (Turner), heavy rose edge, the flowers large, and superbly finished, colour bright and sharply defined. *Ethel* (Fellowes), medium rose edge, flowers of large size and splendid form, the ground exceedingly pure, and the colouring bright. *J. B. Bryant* (Ingram), heavy red edge, flowers large and of excellent quality, petals smooth and of grand substance. *Juliana*, another fine heavy red edge, the flowers of good size and splendid form, the colouring very rich and solid. *Mrs. Allcroft* (Turner), light rose edge, flowers large and full, petals smooth, ground very pure, and the colouring bright and sharply defined. *Mrs. Hornby*, light red edge, a grand flower, remarkable for its size, perfect form and purity. *Mrs. Fordham* (Turner), medium rose edge, a superb flower of large size and splendid form; one of the best for back rows. *Norfolk Beauty* (Fellowes), heavy purple edge, flowers of medium size and good form, petals remarkable for breadth and high finish. *Princess of Wales* (Fellowes), heavy red edge, flowers of large size, grand form and beautifully finished; a superb back row flower.

The three comparatively new perpetual flowering Picotees *Ascot Giant*, *Ascot Yellow*, and *Prince of Orange*, are so valuable for furnishing cut flowers for the button-hole, and other purposes, that they well deserve a word of commendation, although of no use for exhibition. The first has a heavy red edge on a white ground, and the other two a crimson edge on a yellow ground. The flowers of all three are of large size and good quality, and, by a proper system of cultivation, may be obtained in abundance throughout the season.

EARLY-FLOWERING PELARGONIUMS.

BY ROBERT OUBRIDGE,

Church Walk Nurseries, Stoke Newington.



THE early-flowering pelargoniums of the show class make such a grand display of colour, and are so useful for cutting from long before the ordinary varieties are in perfection, that a few dozen plants at least should be grown by all amateurs who have a greenhouse or conservatory. These varieties are more vigorous in constitution, and produce a greater profusion of flowers than those which have flowers suffi-

ciently symmetrical to gladden the heart of a florist; hence they possess a greater degree of value from a decorative point of view. At the same time I would guard myself against appearing to recommend them in preference to the others, and all that I am desirous of advocating is the importance of their being grown for the purpose of affording a supply of flowers before the others are at their best.

Many amateurs, and professionals too, fail in ensuring results so satisfactory as could be wished in the cultivation of the early kinds, and in a very few words I hope to be able to explain the cause of these failures. To secure an early bloom it is needful that the plants should be propagated early enough in the season to afford them time for becoming strong and well established in the pots in which they are to bloom by the middle of the autumn. This is seldom done, because, owing to the greater convenience, propagating is usually performed late in July; consequently they do not acquire a sufficient degree of strength to admit of their flowering much before the ordinary varieties, when they are hardly required. The proper course is to remove the plants from the conservatory immediately they go out of bloom. Place them in a cold frame where they will be fully exposed to the weather, keep rather dry at the root, and by the 1st of June the wood will have become matured sufficiently to admit of their being cut down, and the cuttings struck. I shall not dwell upon the latter point, because it is now well known that portions of the wood consisting of two joints each, the upper one furnished with a young shoot, form the best cuttings, and strike freely in a warm or cold frame; they may be inserted singly or several together in each pot, and in any case require moderate sprinkling. When they are rooted pot them. If separately, using small 60's, and from these transfer them to 48's as soon as they are nicely established. No further shift will be required, and until danger from frost is apprehended, an open position out-of-doors, with a layer of coal-ashes underneath the pots, will be the best place. Severe pinching is unnecessary, and from one to two stoppings will suffice, the first to consist in the removal of the terminal point of the main shoot soon after the plants are potted off singly, and the second in pinching the points out of the side-shoots in ten days or so after the shift into pots of larger size. If, however, from three to four side-shoots are produced from the first stopping that will suffice, and no further pinching be required.

Those who have no stock to propagate from should purchase, with as little delay as possible, plants that were struck last autumn, and are now nicely established in three-inch pots. These will require pruning moderately, or stopping, as the case may be, and be kept rather dry for a fortnight or so, then shake them out and repot, using six-inch pots and a fresh compost, and otherwise manage them in the same manner as the summer struck cuttings.

Mellow turfy loam, leaf-mould, and silver sand will form a most excellent compost, the proportions being three parts loam to one part of the leaf-mould, and sufficient sand to give the compost a gritty appearance, usually one part of the sand to six parts of the compost is sufficient. During the late autumn and early part of the

winter keep them in a dry, airy house near the glass, and supply moderately with water. In February remove them to a warmer temperature if available, and they will bloom profusely very early in the season. If allowed to remain in a cool house they will not of course bloom so soon, but the flowers will be produced considerably in advance of those included in the later section.

As some of the varieties are so much better than the others, I would mention the undermentioned as being remarkable for profuse blooming, purity, or richness of colouring, and distinctness: *Crimson King*, rosy crimson; *Dr. Andry*, rosy blush, fringed; *Digby Grand*, white, with dark blotch on top petals, beautifully fringed; very compact, and free flowering; *Gauntlet*, rosy carmine; this is the variety grown so largely for market purposes, and may be had in bloom throughout the winter; *Fair Rosamond*, white, with purple spots; *Mons. Boucharlet*, deep crimson; *Kingston Beauty*, white, dark spot on top petals; *Marksman*, deep magenta red, maroon spot on top petals, very effective where well grown; *William Bull*, bright carmine, very free and effective.

A new variety, which has been introduced from the Continent, under the name of *Triomphe de St. Mandé* is remarkably fine, the flowers of good form, deep rich crimson, and produced in enormous trusses. This variety will take the lead as soon as it becomes plentiful.

ARALIAS FOR THE CONSERVATORY.

BY JOHN BURLEY, F.R.H.S., ETC.

Hereford Road Nursery, Bayswater, W.



THE Aralias are so distinct in leafage from agaves, yuccas, palms, dracenas, and in fact from the majority of conservatory plants generally, that a few of the most useful kinds should be grown wherever ornamental-leaved plants are appreciated. Some of the neat-growing kinds are also useful for stands in the drawing-room and front hall; and one or two of the hardiest sorts will be found of considerable value in making up balcony groups. They are all comparatively easy to cultivate, few things more so, for well-established specimens simply require to be supplied with water at intervals, as may be necessary, according to the season. Frequent or annual shifts are only necessary in the case of small plants, as those of large size can be maintained in good health in the same pot for several years.

We have more than a score of distinct species and varieties to choose from. All are more or less beautiful, but they are not of equal value. But as some require to be grown in the stove, I will only treat of those that will do for the conservatory; and as we have a wide range of forms to choose amongst, varying from broad palm-like to narrow willow-like foliage, there will be no lack of kinds for our purpose. First and foremost, both for hardiness of constitution and nobleness of foliage, comes *A. Sieboldii*, and its

variegated sports, *alba* and *aurea*. The former has white and the latter yellow markings on the foliage, and in about equal portions with the green, giving the whole plant a pleasing and novel appearance. The leaves resemble very closely in form those of the fig-tree, and are of a beautiful deep glossy green, margined, in the case of the varieties, with yellow or white. On moderately large plants they are at least three times the size of those of the fig. They are very hardy; I can speak of that to a certainty, as during the whole of the severe winter of 1866-67 we had a large plant of the green form in a conservatory that was not heated, and of course the frost had its own way with the plants; and the soil for some time was as hard as a brick. There are also several plants in the shrubbery in the recess at the head of the Serpentine in Hyde Park, which have been out several winters without having received the slightest injury. But the plant was not in the least injured; on the contrary, it has flowered beautifully since. I will describe this, as it was the first plant of its kind that ever I saw in bloom. The flower-stem was thrown up through the heart of the plant about a foot high, whilst the blossoms, if such they could be called, were borne on side shoots of the stem, and resembled as much as anything dirty balls of white cotton, of sizes varying from a walnut down to a nutmeg, and covered all over with fine silky hairs standing erect. It was very curious and interesting, this crown of about fifty fluffy balls on top of the plant, and it continued for about six weeks in perfection. I was afraid at the time that the plant was spoilt by having flowered; but my fears were soon at an end, for at the base of the flower-stem there soon formed a fresh centre, which resembled very much a crown of the common rhubarb.

There is also another variety of Sieboldi, of more recent introduction. The leaves are of the same size and form, but the surface is covered with a network, or, as the botanists say, a reticulation of gold. This is known as *A. Sieboldi aurea reticulata*, and is very pretty, but as yet expensive.

The strong-growing *A. papyrifera*, popularly described as the "Chinese paper-plant," is well known by reason of its being employed rather extensively in the sub-tropical gardens in the public parks, and its large spreading dark-green leaves are not readily forgotten when once seen. It is very graceful in its growth, and exceedingly interesting. The same may be said of *A. reticulata*, with its narrow pendulous foliage, nicely marked with faint yellow bands, sometimes with purple down the mid-rib, on a pea-green ground. This, it must be borne in mind, is quite distinct from the reticulated variety of Sieboldi. *A. leptophylla* has a greenish purple shade on the leaves, whilst the stems are of a still darker purple, giving the plant a striking appearance when grouped with other plants of different characters. *A. crassifolia*, *A. Thibautii*, *A. trifoliata*, and *A. umbraculifera* are also good species, and all different in foliage and growth; but the kinds first named would be the best and cheapest for our purpose.

It is really not needful to say much in reference to the cultural details, because they require none of the tying and training common

to a large proportion of decorative plants, very seldom want re-potting, and the propagation of a fresh stock will only be necessary at long intervals. The compost which appears to suit them best is prepared by well incorporating together good turfy loam three parts, leaf-mould one part, well-decayed manure one part, and silver sand half a part. In this mixture they will grow vigorously, provided the pots are well-drained and the soil pressed firm. To keep them in health, they must be supplied liberally with water at the roots, and during the summer season be syringed overhead frequently.

WINDOW GARDENING.

BY MISS A. HASSARD,

St. Roman's, Upper Norwood.



REALLY many people who are very fond of flowers, and would be fond of minding them, had they the opportunity to do so; but because they may not have any greenhouse or garden, they never think anything about them, quite forgetting how many charming plants and creepers they can grow in window boxes for a very little cost and trouble. Perhaps, therefore, a few hints may prove useful to those who are thinking of fitting up some this season.

First of all, I shall say a few words about the boxes. There is no use in getting expensive ones. I have seen some that only cost half as much as others, look twice as well when the plants were growing in them. Some are made of tiles, others of common wood, painted green, and then covered over with virgin cork. The latter look twice as well as those made of tiles, and will not cost so much; but those made of zinc and tiles will last twice as long. Firmly attached to the ends of the boxes, and across the tops of the windows, should be a few strained wires, as I think creepers growing up out of the boxes form such pretty frames round the windows. There should always be plenty of holes in the bottoms of the boxes, and over them a good layer of broken crocks for drainage, as one of the great things to keep the plants in health in summer is to give them plenty of water; and to do this, of course there must be good drainage. After the crocks have been placed over the bottom of the boxes, they should be filled up with a mixture of loam, leaf-mould, a little manure, and some sharp sand or road-grit. Next plant (one at each end) different kinds of clematis to train up the wires round the windows, as nothing looks better, and they stop out all the year round, and season after season. Such sorts as *Jackmani*, purple, and *Candidissima*, white, are eminently suitable. A box which I saw last summer, and admired very much, was fitted up in the following manner:—trained round the window, planted as above described, were two plants of *Clematis Jackmani*; in the front

of the box were a row of *Centaurea* and bright-blue *Lobelia*, planted alternately; and at the back, a row of pink *geranium Christine*. The effect of the frame of dark blue-coloured clematis, and then the mixture of the light-blue, pink, and white, was very light and elegant looking. The same house had a box with an edging of blue *Lobelia*, and behind it a row of plants alternately of *calceolarias* and *Iresine*. I had a box myself once with *Lobelia* in front, and behind it plants of *Lady Plymouth* geranium; the effect was light and simple, and the perfume of the geranium, if you passed your hand over it after a shower of rain, or it had been watered, was very sweet. Some boxes are very pretty with plants of *variegated Ivy* trained up the windows, and some of it left to trail at the ends round the edge, and falling over different kinds of sedums, and the rest of the box filled with small *hardy ferns*, *Echeverias*, *stonecrop*, and all kinds of Alpine plants. Through these plants should always be placed little bits of quartz, etc., etc., to give a kind of rock-work look. It helps to keep the plants damp, and it looks much better than letting the earth be seen between them. Whenever ivy is used, strong plants should be put in, as it grows slowly at first. And now, I hope those of my readers who may be fond of window gardening, will fit up some of those I have mentioned, and I am sure they will not be disappointed with the result.

MR. HIBBERD'S POTATO TILE.



IN the issue of the FLORAL WORLD for March last, a brief *resumé* was given of the lecture delivered before the Society of Arts by Mr. Hibberd, in which he explained his new system of potato culture. Since the appearance of the number referred to, we have received numerous letters asking for further information upon the subject, and, instead of answering them separately in the usual place, we have considered it desirable to group the several inquiries together, and give a general outline of the system, accompanied with an illustration of the tiles employed in carrying it out. As was explained in the lecture, the potato suffers most severely from the disease in cold wet summers, like that of 1860, and in summers remarkable for the fluctuations in the temperature, as was the case in 1872, when heat and cold rapidly alternated, and the plant was frequently gorged by sudden heavy falls of rain. Heavy rains promote the growth of the potatoes, and if the surplus water can escape quickly, the increased rate of growth need not be badly balanced by destruction resulting from the murrain. The way out of the difficulty is to resort to "geothermal culture," and adopt measures for quickly removing the surplus moisture from the soil, and also for storing up sun heat to assist the plant in tiding over a term of destructive cold. The cheapest and readiest non-conductor available to aid in the undertaking was atmospheric air, and the conclusion was arrived at, that by imprisoning a body of air beneath

the roots of the plants, a tremendous change would be effected in its power to endure the assaults of cold and wet in those periods of unfavourable weather which are the forerunner of potato disease. The plan adopted in the experimental gardens at Stoke Newington was to lay down tiles to form tunnels, and to lay the sets on the tiles, and cover them with earth from the spaces between the rows, which for the strong growing main crop varieties should be four feet apart. The potatoes are thus grown on ridges, with continuous air spaces beneath them and depressed alleys between them. By this plan the plant obtains a maximum of light and air, lodgment of water at the roots is impossible, and in the event of a sudden lowering of the temperature, the body of air imprisoned beneath the roots renders essential service in preventing a corresponding lowering of the temperature of the earth in which the roots are growing.

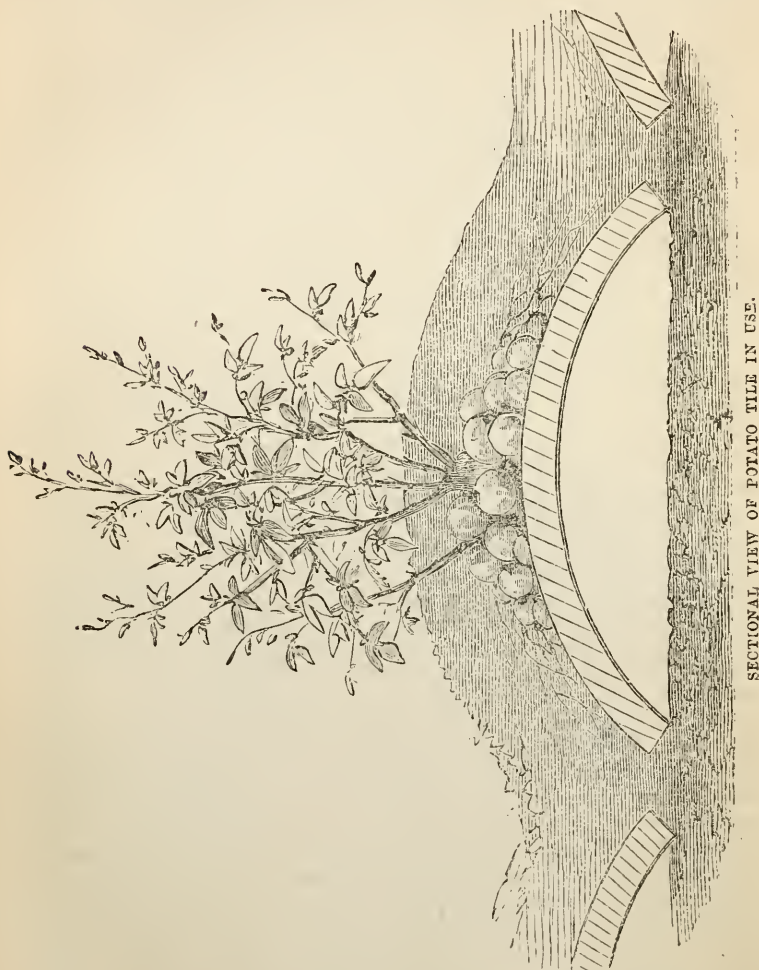
The tile employed was made expressly for the purpose by Messrs. Scales, of the Green Lanes, Stoke Newington. This tile is four inches in depth and twelve inches in width, and nearly flat on the top, and by laying it down end to end, hollow side downwards, a continuous capacious tunnel or reservoir of air is provided under every row of potatoes.

The tile system of potato culture is unquestionably costly, for these tiles cannot be laid down in lines, four feet apart, for less than £66 per acre. This is certainly a large sum, but, as was shown by statistics in the course of the lecture, the system could be adopted in the field culture of the potato with a fair prospect of obtaining a much larger profit than by growing them on the flat in the usual manner. The cost of tiles was to be regarded as an investment, for the amount of annual breakage need not exceed five per cent.

Although the system may be adopted in the field, it will most probably be found of the greatest value in the garden culture of the heavy land, and in the preparation of stocks of the newer kinds for distribution through the usual commercial channels. We have to consider the requirements of an extremely valuable plant, and we can afford to increase the expense of cultivation to a considerable extent, provided we can insure a plentiful production of sound tubers in a season when disease generally prevails, and thorough trials have shown that with the tiles this can be done. As yet few people are really aware of the value per acre of an average crop of a new variety, possessing sufficient merit to command a good price, as in the case of the Early Rose, and others of more recent introduction. As an example, let us take the case of some of the new sorts sent out during the past planting season. The crop of Rector of Woodstock, which was sold at 1s. per lb., was, at the rate of eight tons, worth £896 per acre. The crop of Extra Early Vermont, which sold well at 2s. 6d. per lb., at the same rate of production, was worth £2240 per acre. When Early Rose was selling at one dollar per lb., a crop of eight tons was worth £3,733 6s. 8d. per acre. The crop of Snowflake, an American variety, which was offered at 12s. per lb. this spring by the leading London houses, and sold well at the price, would, at the rate of eight tons, be worth the enormous sum of £10,752. It will thus be seen that the annual cost of the

tiles, which will be a trifle under £7, reckoning ten per cent. for interest and breakage, is not worth mentioning, especially when we consider that by the use of the tiles the crops may, in some seasons, be nearly doubled.

For the information of those of our readers who may be disposed



to give the system a trial next year, we would mention the fact that the orders must be given a year or so in advance, to afford the makers time to manufacture them. Common ridge tiles have also been employed, but they are not of such value as the tiles made expressly for the purpose, for they do not imprison such a large body of air underneath the plant.

SEASONABLE WORK IN THE KITCHEN GARDEN.

BY GEORGE GRAY,

Head Gardener, Ewell Castle, Surrey.



ALTHOUGH all the summer crops are planted or sown according to their character, and the ground covered, there is plenty of work to be done in the kitchen-garden, and there must be no slackening in the efforts to keep well ahead of the work, or it will soon overpass the cultivator.

Weeds are now growing with amazing rapidity everywhere, and the hoe must be kept busy at work to keep them down, and prevent them seeding, and laying the foundation of a second crop. When they are allowed to seed, immense crops will be produced in the autumn, when, owing to the decrease in the power of the sun, and the increase in the rainfall, it is very difficult to destroy them. Hoeing the ground between growing crops is of advantage in other ways than in destroying the weeds, for it loosens the surface soil, checks evaporation, and enables the rains to soak down to the roots of the crops more readily than is possible when the surface has become hard. Dry bright days should be taken advantage of for hoeing, as the work can be done with less trouble, the weeds destroyed more effectually, and the ground left in a better state. As the hoe can be run through the soil, just as a crop of weeds is making its appearance, with about half the labour involved in chopping up strongly-established weeds, it is always best to set the hoe to work immediately the weeds are making their appearance.

The planting of marrows, gourds, cucumbers, and tomatoes must be completed early in the month, or the season will be gone before the plants will arrive at a bearing state. The tomatoes must be planted in a warm, sunny position; for like the potato, to which they are closely allied, they do but little good without plenty of heat and sunshine. They succeed the most satisfactorily against a wall or close fence, but on warm soils good crops may be obtained from the open quarters, provided the season happens to be favourable. The marrows and gourds also like plenty of sunshine, and a liberally manured soil, but they are not very particular, and good crops may be obtained from plants put out in an open position, and in ordinary good soils. It is quite unnecessary to plant them on heaps of manure, as is so frequently done, but there is no objection to the practice, provided the manure is plentiful. Seed of these two vegetables, sown in the open border at once, will quickly germinate, and the plants so raised will produce good crops, although the first fruit ready for the table will be later than that obtained from plants raised from seed sown in the frames. I mention this for the information of those who, from any cause, have no stock available for planting out, and also to show that if the frame-room is limited, good crops may be obtained without occupying any of the room under glass in the preparation of the plants.

Many of the crops sown in open beds in spring, such, for instance, as cabbage, cauliflowers, and lettuce, will require planting out; and as it is necessary to do this with some amount of care, a few hints will, perhaps, be of service. It is well known that dull showery weather is the most favourable for transplanting operations, but it is not always prudent to wait for showers, and by a very small amount of extra labour very successful results may be ensured in the driest weather. If the weather is dull and showery, take advantage of it, and, if possible, plant before a shower, so that the fullest advantages may be derived from it. To cheat the dry weather, lay down the line, and draw a drill where each row is to be, and previous to planting fill them with water. These drills should be about four inches in width and three inches in depth. To make neat work, draw the foot along by the side of the line to break down the clods, and after the drill is drawn fill it with water. The evening is the best time for planting, and if the drills are prepared during the day, a very large number may be put out in an hour or so. After the planting is completed, water the plants moderately, and they will then be placed under conditions most favourable to their becoming quickly established. The drills will also enable the cultivator to water more effectually, and with less trouble, than would be possible were the planting done on the level. It is not, as a rule, safe to transplant until the plants have attained a moderate size, because of the risk of their being eaten with snails and burnt up with the sun; but at the same time they must not remain in the seed-bed until they are drawn up eventually through overcrowding.

The seeds to be sown now comprise cabbage and cauliflowers for late autumn supply, endive, lettuce, radishes, spinach, turnips, dwarf and runner beans, and early horn or intermediate carrots for drawing young. The cabbage and cauliflower seed must be sown in beds and transplanted, but the endive and lettuce should be sown in drills where they are to remain. This is, perhaps, the only way by which really fine samples can be obtained. A considerable saving in labour is effected, and to balance this we have a trifling waste in seed; but it is very trifling, for it may be sown very thinly indeed. The turnips require careful management at this season of the year, and the best course is to sow in drills that have been filled with water previously, and commence dusting the bed with soot as soon as the young plants begin to make their appearance above the surface. A sharp look out must be kept, and the dusting commenced as soon as the first few plants can be seen. The turnip-fly, which commits such terrible havoc with the crop in dry weather, does not wait till all the plants are well above ground before it commences its depredation, but makes a beginning with the first plant to be met with, and sometimes they will destroy each one as fast as it comes up, and the whole crop is eaten up so rapidly that in consequence the cultivator believes the seed he had used has not germinated. The soot, if obtained fresh from the kitchen chimney, should be mixed with a small quantity of dry dust to facilitate its regular distribution. In the evening or after a shower is the best time for its application, as it then adheres to the leaves. The bed may also

be watered. These dustings will require repeating at intervals until the plants have two or three rough leaves each. The beds of cabbage and cauliflowers will require the same attention to prevent their destruction. In showery weather this close attention is not quite as needful, for the plants are able to make such rapid progress that the fly is not capable of doing much harm.

The beans must, of course, be sown in the ordinary manner. They are simply intended for successional supplies, and where there is already a good crop of both dwarf and runners coming on, it will be unnecessary to sow any more of the former for the present. A sowing of runners about the middle of the month will be useful for supplementing the earlier-sown crop in the autumn, when the latter, as is generally the case when the weather keeps open until an advanced period, ceases to be productive.

Thinning the spring-sown crops will still engage the attention of the cultivator, and, without speaking upon this matter in detail, I would observe that this work should be proceeded with in a gradual manner, so that the crop may not be thinned too severely at first, and, at the same time, not become crowded. A moist state of the soil will allow of the surplus plants being removed without displacing or otherwise injuring those remaining; and it should, therefore, be taken advantage of as far as circumstances will permit.

Watering should, as a rule, be limited to newly-planted or sown crops, for applications of water to those well established is likely to do more harm than good.

Vegetable marrows sown the first week in June will give abundance of fruit in August and September.

THE GARDEN GUIDE FOR JUNE.

“And after her came iolly Iune, arrayd
All in greene leaves, as he a player were;
Yet in his time he wrought as well as playd,
That by his plough-yrons mote right well appeare:
Upon a Crab he rode, that him did beare
With crooked crawling steps an uncouth pace,
And backward yode, as bargemen wont to fare,
Bending their force contrary to their face,
Like that ungracious crew which faines demurest grace.”

SPENSER.



THE somewhat gloomy forecast of May that we ventured upon in the last number, has been more than justified by the painful and destructive weather of the month now closed. The barometer has been unusually high, the amount of rain so small that the wells are fast becoming dry, and the cold so intense and prolonged that the fruit crop is in great part destroyed, and vegetation everywhere has a blighted appearance, as if a devouring flame had passed over the land. June is usually a bright month, the average rain being under two inches, with a steady barometer ranging above the mean

of thirty inches. The mean temperature is 59° , the average range being from 37° to 90° . The first eight days may be cold and gloomy, and we may wait until the 20th for good summer weather, although southerly and westerly winds are due about the 10th, with occasional light showers. A really good season, such as 1868 or 1870, we cannot now hope for, the May frosts having ravaged the land. Let us hope, however, that what is left of fruit and grain may ripen fairly, and that out of the abundance of the heart we may praise the Lord of the harvest.

The more important of the garden flowers are the *cenotheras*, *campanulas*, *dephiniums*, *dianthus*, *pinks*, *pæonies*, *pyrethrums*, *lilies*, and *sweet-williams*. By the end of the month, the summer bedders will begin to produce a good display of colour.

The garden work of June comprises the thinning and training of the shoots of the fruit-trees, thinning the fruit, and frequent washings of the foliage; the removal of the runners from strawberry beds, planting out and sowing successional crops of vegetables. The most important of the indoor work is the general removal of the hard wooded plants from the greenhouse, and the repotting of such as require more space for the development of the roots.

FLOWER GARDEN.—To secure fine spikes or flowers, as the case may be, old stools of such things as produce a multiplicity of flower-spikes should be examined, and the weakest of the flowering shoots thinned out. Stake those left, and also flowering spikes of *delphiniums*, *lilies*, etc., to prevent the wind snapping them off. The summer bedders ought to be in their proper places by this time, and the beds and borders be made trim and neat as speedily as possible. Pansies that have done flowering should be cut back, and cuttings made of the young side-shoots as they push. *Petunias* and *verbenas* should have the young shoots pegged out regularly before they get crowded. Upright growers should have the soil stirred between them, if it has become hard from the necessary waterings. The superfluous shoots should be removed from briers intended for budding, and the remaining ones shortened back if they are growing too vigorously. Sow seed of annuals for autumn flowering, and herbaceous perennials for flowering next year. Many hardy plants will strike freely now on a shady border, or under hand-lights, if the young side-shoots are slipped off with a heel, and inserted firmly in the soil. *Dahlias* and *hollyhocks* must have stakes put to them at once, and *chrysanthemums* in the borders stopped at the beginning and again at the end of the month.

GREENHOUSE.—The whole of the hard-wooded plants ought to be removed into the air some time this month, according to the state of the young growth. The utmost caution is necessary, just now, to see that the plants have sufficient water at the roots, but without having too much. *Pelargoniums* are now fast going out of flower, and should be removed to the open air to mature the young wood. The early-flowering varieties that were cut back early last month will be ready for potting soon. The plants should be shaken out of the old stuff, the roots pruned, and then be repotted in smaller-

sized pots. Fuchsias may have liberal supplies of manure-water to help them on as the pots get full of roots. Put off cuttings just struck, and shift on young stuff, so that no check may be experienced by them at this stage.

STOVE.—The allamandas, dipladenias, ixoras, vincas, achimenes, and gloxinias will now be coming finely into bloom, and there should be no lack of flowers in this structure. Any of the stove-plants that are removed to the conservatory when in bloom should be placed at the coolest end, or go into an intermediate house a week previous. Stove-plants should have the warmest position the conservatory affords, and be guarded from draughts. Achimenes and gloxinias for late flowering should now have their final shift, and winter-flowering plants be potted on as occasion requires. Shift Stanhopcas into larger baskets, or top-dress with fresh sphagnum as they go out of flower. Orchids growing on blocks will now require a daily dipping in tepid water.

KITCHEN GARDEN.—Endive and lettuce ought to be sown where they are to remain at this season, for they run to seed long before they get to a full size when transplanted. Plant out cabbage and cauliflower for the autumn, and Brussels sprouts, borecole, brocoli, and savoy for the winter. Choose a dull, moist day, if possible, for all planting operations. Plant out the early crop of celery, and shade with a few branches of evergreen until the plants are established, and keep well supplied with water. Keep the hoe going amongst all growing crops, to keep the surface loose, and the weeds in subjection. A second crop of scarlet-runners ought to be sown the second week for succession, and a few rows of dwarf beans both the first and last week.

FRUIT GARDEN.—Let the work of thinning the young shoots progress steadily, and leave no more wood than is really wanted for bearing next year, and filling up vacancies that are likely to occur. Pyramids, espaliers, and cordons should have just as much attention as wall-trees; thin out the shoots where the trees are likely to be crowded with too much wood. Remove all runners from the strawberry-beds, unless they are required for layering; by doing it now, a lot of trouble will be saved hereafter, as it can be none in less than half the time. A few doses of liquid manure will help to swell off the late crops.

FORCING.—The bottom-heat in which the pines are plunged must not be allowed to decline now, more especially in the fruiting-house. Shift into larger pots suckers and succession plants that are becoming pot-bound. Make up a bed of tan or warm leaves in one of the pits lately occupied with bedding-plants, and remove thereto all the small stuff, to give the large plants more room. Vines in all stages to have abundant ventilation early in the day. The borders must be kept well supplied with water, excepting where the grapes are just colouring. Peaches and nectarines must be well aired directly the crop begins to ripen. Figs must be kept rather cool and dry whilst the first crop is ripening, and then, when the bulk is gathered, it can be kept moist and close to push on the second lot.

HORTICULTURAL AFFAIRS.



THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION OF POT ROSES, on the 13th ult., was a decided success, for the specimen plants were presented in magnificent condition, and the half specimens were remarkable for the freshness of the ample foliage and the high quality of the flowers. In the great trade class for twelve specimens, Messrs. Paul and Son, of Cheshunt, and Mr. Charles Turner, Royal Nurseries, Slough, were the exhibitors, and the prizes were awarded in the same order as the names are here placed. Both collections were made up with huge pyramidal specimens, averaging five feet in height, and nearly as much in diameter at the base. These were literally solid with flowers of large size and the finest quality, and the foliage was in the best possible condition. The two collections formed, in fact, the most magnificent twenty-four specimen roses ever exhibited at the same time. The exhibitors of collections of twenty were Mr. C. Turner, Messrs. Paul and Son, and Messrs. J. Veitch and Sons, Chelsea; and the prizes were awarded in the same order as the names are placed here. To give the names of the varieties represented in the several collections would occupy more space than can be well spared, and an enumeration of the most distinct and beautiful varieties in the exhibition will be really of more service. These were, John Hopper, Visconte Vigier, Camille Bernardin, Juno, Victor Verdier, Madame Victor Verdier, Charles Lawson, one of the finest of pot roses; Elie Morel, Paul Perras, La France, Beauty of Waltham, Anna Alexieff, General Jacqueminot, Lyonnaise, Edward Morren, Marquis de Castellane, and Centifolia, amongst the hybrid perpetuals and Bourbons; and Celine Forestier, President, Souvenir de Malmaison, Souvenir d'un Ami, Cheshunt Hybrid, Marie Van Houtte, and Perfection de Montplaisir, amongst the tea-scented and noisette varieties. The last-mentioned is a superb yellow rose, of recent introduction, which will be found of great value for specimen culture. Messrs. Veitch exhibited their new tea-scented rose, Duchess of Edinburgh, which is remarkable, apart from its high quality, as being the first rose of its class with crimson-scarlet flowers. We have had an opportunity of seeing it several times during the season, and consider it a most meritorious variety. Mr. Moorman, of Coombe Bank, exhibited a very pretty group in the class provided for amateur cultivators. Mr. B. S. Williams, of Upper Holloway, and other principal trade growers, exhibited splendid collections of palms and flowering and ornamental-leaved plants.

A TRIAL OF LAWN MOWERS is announced to take place in the Lower Grounds, Birmingham, on July 8, in connection with the Midland Counties Exhibition, fixed for July 7, 8, 9, and 10.

THE CRYSTAL PALACE FLOWER SHOW, on the 9th ult., was of a similar character to the exhibitions held at this popular place of resort in former years. Stove and greenhouse plants were well represented. Azaleas were rather below the average of previous years. Cape heaths remarkably fine, and pot roses simply magnificent. The principal trade exhibitors were Mr. B. S. Williams, Messrs. T. Jackson and Son, Kingston-on-Thames; Messrs. Paul and Son, and Mr. C. Turner. The principal amateur exhibitors were Mr. Peed, Lower Norwood; Mr. Ward, Leyton; Mr. James, Isleworth; and Mr. Bain, Bickley Park.

A GREAT ROSE SHOW will be held at Geneva, under the auspices of the International Congress of Rosarians, on the 12th, 13th, and 14th inst. A committee has been formed for the purpose of co-operating with the municipal authorities in carrying out the necessary arrangements of the exhibition. A discussion on the culture of roses is contemplated, and English cultivators, especially amateurs, are invited to attend.

THE FLORAL DECORATION AT THE MANSION HOUSE, on the occasion of the ball given to the Duke and Duchess of Edinburgh, were of a very beautiful and extensive character, and many new plants never before used in any previous decoration were displayed. Amongst these were *Aralia Veitchi*, *Cocos Weddelliana*, *Maranta Makoyana*, *Pandanus Veitchi*, and many rare palms and orchids, etc. Two tons of ivy were used in draping the pictures, mirrors, and walls of the various rooms and halls. The cut flowers comprised upwards of 2,000 blooms of Maréchal Niel rose, in addition to large quantities of Stephanotis, Gardenias, etc. Altogether, fifty-nine van loads of plants were employed in the decorations.

TO CORRESPONDENTS.

EXHIBITING CARNATIONS AND PICOTEEES.—*Inquirer, Tasmania.*—The flowers at the English Exhibitions are invariably staged with a piece of cardboard underneath. In some cases these cards are made in imitation of lace bouquet-holders, and to a certain extent add materially to the general effect of a stand of blooms. The cards are of considerable service in preventing the pods splitting when the flowers are being dressed, and in holding those together which have burst previously.

BLEEDING OF VINES.—*J. W. W.*—The vine is suffering from what is technically known as "bleeding" caused by its being pruned after the sap was in active circulation; the exudation of the sap has probably ceased by this time, but if it has not done so, paint the wounds with painters' "knotting," which may be obtained at any oil-shop; a very small quantity will suffice, and proper care must be taken to avoid splashing it over the other parts of the vine.

SEEDS.—*G. Barnes.*—The seeds of the subjects mentioned ought to have been up when your letter was written, and if the young plants have not yet made their appearance the safest course will be to sow again. The cyclamen seedlings should be potted off separately in three-inch pots, and kept in a growing state during the summer; they will not require any subsequent shift until after they have done flowering next year, and have enjoyed a few weeks' rest.

CLOURING A STAR.—*Lady Subscriber, Hants.*—A rich and satisfactory effect may be produced by first of all planting in the centre a circle, rather large in proportion to the size of the bed, of scarlet geraniums; either of the free-flowering varieties would do. Surround this with a double row of variegated geraniums, such as Bijou or May Queen. Then plant a border of *Cerastium tomentosum* or some other dwarf silver-leaved plant all round the outside of the bed, and fill in the remaining space with blue Lobelias. Before we can advise on the pruning of the fig-tree, we must first know whether it is growing under glass or in the open air.

SHRUBS FOR BANK.—*E. M., Wimbledon.*—The following subjects will be found suitable for the sloping bank, Aucubas, Hollies, Euonymus, the common Laurel, the Japanese and common Evergreen Privet. It will be advantageous to have ledges eighteen inches in width, planted on the slope the shrubs will be exposed to the risk of perishing from drought. Between the shrubs, common or Irish Ivy, the strong-growing Periwinkle, *Vinca major*, and the variegated form, *V. major elegantissima*, may be planted to trail over the bank. At the top of the bank a row of Hollies may be planted.

PLANTING UNDER TREES.—*R. W. D., West Hartlepool.*—The most useful subjects for planting under the trees for forming a thick undergrowth are the common Laurel, the common Berberis, the common Yew, and the common Holly. All these grow freely under trees, provided they are not allowed to perish from drought. The green-leaved Aucuba will be useful for planting in sunny situations. The buildings will be made less objectionable by covering the walls with Ivy. The most suitable ivies for the purpose are the common Irish and the Algerian, as they are of free growth and soon cover large wall spaces; to cover the walls as quickly as possible, put out strong plants from pots and provide them with a barrowful of rich soil to root into to give them a good start.

PROPAGATION OF PRIMROSES AND POLYANTHUS.—*Amateur.*—The plants may be increased by division of the roots and seeds. In propagating by means of division, break the plants up into three or four pieces, according to their size; or, if it is desired to increase the stock as much as possible, each plant can be divided into as many parts as it has crowns; separate the plants so that each portion has a firm base, then plant them three or four inches apart in rows about nine inches from each other. A shady position should be selected, and the growth will be more vigorous if the soil is rather light and rich; they do exceedingly well in soil with which a liberal proportion of leaf-mould has been incorporated. To raise a stock of seedlings, sow the seed, as soon as it is thoroughly ripe, in pans, and place in a cold frame. A mixture of loam, leaf-mould, and sand will be the most suitable for filling the pans, and until the seed has germinated the soil must be kept in a nice moist state; the plants will require planting out in nursery lines in a shady position when furnished with two or three rough leaves, and in the autumn they can be planted out in the borders, or be lifted and replanted farther apart. By the

autumn following they will make grand clumps for the decoration of the flower-garden during the spring months.

MAKING STRAWBERRY-BEDS IN SUMMER.—*F. G.*—As you have a stock of plants that have been forced in pots there will be no difficulty in forming beds at once, and thus gaining a season. Plant them firm at the usual distance apart, and if the weather is dry, give the plants several thorough good soakings of water; they will soon become established and form fine plump crowns, which will produce good crops of fruit next season, and most probably a few fine dishes this autumn; but this is not always to be depended upon. Next to the forced plants come the runners, which should be layered the same as plants intended for forcing. We cannot understand why the old plan of allowing the runners to grow in a mass together until September, and then tearing them up and making fresh plantations, is so persistently followed. A whole season is lost, as the plants have no more time than is sufficient for them to become firm enough to keep the worms from dragging them out, whereas runners layered in small pots, and planted out immediately they are nicely rooted will, with a few waterings, produce good crops next summer. In watering established beds it is well it should be thoroughly understood that a mere sprinkle on the surface is of no use; it only encourages the roots to the surface, making the plants more susceptible still to the influence of the weather. If the liquid-manure you speak of runs direct from the stable, dilute it with twice its quantity of water, but if only the manure-heap it should be mixed with clear water in equal proportions. Guano mixed at the rate of two ounces to the gallon also makes a good liquid manure for strawberry beds.

PENTSTEMON SEED.—*B.*—As the seed has been saved from a few choice varieties sow it in pans full of light soil, such as loam and leaf-mould equal parts; sow thin, as you can then let the young plants remain until they are stout and large enough to prick off without being drawn up weak and spindly. When they are large enough, prick out into boxes, and in the spring plant out in their permanent quarters. Cover the pans with a piece of glass, or place them in a cold frame; shade with a piece of canvas or a mat for a few days after pricking the seedlings out.

CLIMBING ANNUALS.—*F. H., Leeds.*—The annual climbers can now be planted out as they are properly hardened off. As they are required to cover a large space quickly, give the border a good dressing of rotten dung previous to planting, and if the eaves of the house project sufficiently to keep the border dry, give them a good soaking of water occasionally.

M. S., Torquay.—Your pretty plant is *Ixia viridiflora*.

J. T.—If we had been favoured with any such communication as yours, we should probably have continued the feature you speak of; but it appeared to be labour wasted, and your letter is the only one we have ever received speaking favourably of it. We have no intention to revive it, for it entails much work, and pleases very few.

EUCODONIAS.—*P. F. O.*—These plants require nearly the same treatment as gesneras. For a practical paper on the subject, see *FLORAL WORLD* for October, 1870.

ROSES.—*X. X. D.*—We do not see the way to help you much, for your soil is evidently not adapted for roses. We think the drift leaves of the slip would help you much if dug in as you get them, taking your risk of the vermin the gardeners are so ready to denounce. The vermin found in such stuff are not usually the enemies of roses. In selecting, probably, the very free-flowering robust varieties that are recommended for town gardens would suit you best, and we think you must be content with manetti roses instead of standards. If you can get peat cheap, even if it is of a boggy texture, you may mix it with the staple soil to advantage for roses. When you have planted, lay on a good coat of fat manure for a mulch.

MUSHROOMS.—*Young Gardener.*—Make up a bed of short dung that has not been heaped or exposed much to the weather. Make it up slowly, so that no excessive fermentation takes place, and let it be moderately dry all through. When only comfortably warm to the hand, say "milk-warm," spread two inches of loam over, and insert the spawn in pieces of the size of hazel-nuts all over it. Gentle waterings occasionally, with a close air and darkness, will give you plenty of mushrooms if the spawn is good. Most of the failures in mushrooms arise from the bad quality of the spawn.



ECHEVERIA ROSEA.

ECHEVERIAS.

(With Coloured Illustration of Echeveria rosea.)

FASHION has made the Echeverias important, but they could never have attained to their present popularity without the aid of first-class decorative qualities. They constitute a distinct section of crassulaceous plants, all of them somewhat more tender than the sempervivums, with which they are closely allied, both in structure and appearance. A considerable number of sempervivums may be grown on open rockeries, and the severest winter will not harm them, but there is not one species of the genus now before us capable of enduring the cold and damp of an ordinary winter near London. But given glass of some sort, and many of the best may be kept. Our own collection of echeverias is the best we have seen in any private garden. The greater part are kept in pots, and winter well in a geranium house that is never heated more than sufficient to keep out frost. Some of the more showy kinds are planted on the highest part of the rockery in a fern-house, where they are extremely effective, requiring no more care than an occasional shower from the syringe, what little of it that lodges about their roots proving sufficient for their sustenance. This is a capital way of utilizing these interesting plants, because the dry, sunny parts near the roof of a fern-house will not suit ferns, and there are not many kinds of plants adapted to harmonize with them, and also to thrive in such a peculiarly trying situation. Another use for echeverias may be found by planting them out in the garden at the end of May, and taking them up in October. Several kinds have become popular as bedding plants, and those that are not adapted for massing make interesting clumps in a sunny border, and grow twice as fast as they would if kept in pots all the summer.

Echeverias will grow in any good soil of a somewhat light description, but when planted out the soil that suits a geranium will suit them perfectly. For pot culture the best compost is a mixture of three parts good loam, and one part each of sharp sand and siftings of lime rubbish or old plaster. For all such plants we provide ourselves with grit by having the sweepings of the gravel walks sifted; this is better than silver sand for succulents. To propagate them is so easy as scarcely to require a note; but it may be well to say that from June to August cuttings may be struck in the open border in the same way as geraniums, and from March to May cuttings may be struck in a warm greenhouse, where the best place for the cuttings is on a sunny shelf near the glass. When rare kinds are to be made the most of, every leaf that can be snapped off full ripe may be made into a plant. Only the fully-matured leaves should be taken, and the best way to remove them is by gentle pressure with the thumb. Carefully dibble the leaves, base downwards, into damp sand, and if you cannot make them hold firmly, cut some fine splinters of wood like tiny skewers, and fix every leaf

in its place by driving the peg or splinter through it obliquely. The leaves must be kept in a warm place, and be carefully managed in respect of watering, for if wet and cold they will rot, if hot and dry they will shrivel. To propagate from leaves requires a little practice, but watchfulness is more needed in the business than any particular degree of skill. Most of the sorts produce plenty of seed, which should be sown as soon as ripe, and treated the same as seed of Chinese primulas. Generally speaking, the amateur will be able to make stock fast enough by cuttings and divisions, and it happens that the sorts most in request may be multiplied to any extent with the greatest ease by these methods.

A few notes on the principal species and varieties may be useful to the reader, and perhaps the best way to arrange them will be alphabetically.

AGAVOIDES is a fine greenhouse plant, growing like an agave, the colour a fine glaucous green. First-rate as a pot plant, and suited for the centre of a shell or carpet bed. If exposed to drip in winter it will be seriously damaged.

ATROPURPUREA is a curious dark-leaved plant, not much to be desired, but quite proper to a selection. In our fern-house it grows with tremendous vigour, and sends up huge flower-spikes that are fantastic enough, but have no beauty.

GLAUCA is the best of all for bedding, and well known for its distinct and beautiful blue-tinted leafage. If a stock is to be raised provision must be made for wintering the plants where they will be safe from frost and drip. We have made good use of this plant in this way. We procured some large rustic pots. In each of these we placed a common empty flower-pot, inverted so as to make a great cavity for perfect drainage. The remaining space was filled with compost, and a few tufts of the plant put in. These soon spread and filled the space allotted to them, and thus they remained three years, presenting large rounded masses of glaucous vegetation, and flowering all the summer most profusely.

LINGUÆFOLIA is not a good one.

MACROPHYLLA is fine and distinct, and makes a good pot plant.

METALLICA is a strikingly grand plant, with large fleshy leaves of a curious metallic grey colour. It is easy enough to manage if kept rather warm all the winter and quite safe from drip, but damp and cold it will not endure. We lost many in the early days of its introduction through wintering them with geraniums, and we soon found that they could not stand the degree of cold and damp that geraniums fight through in the winter. This noble plant should be managed precisely as recommended for *retusa*, and then it will flower finely in the spring. Although *metallica* is here classed as a species for convenience sake, it should be understood that it is a variety of *E. gibbiflora*.

RETUSA is certainly the finest of all the kinds that are suitable for greenhouse and conservatory decoration, as it produces a profusion of brilliant red and orange flowers from October to May. To make fine plants, they should be potted into rather large pots in March, and kept rather warm. At the end of May put them out on

a bed of coal ashes or a brick floor in the full sun, and give them enough water. Take them indoors early in September, let them stand two years in the same pots, and even three, if they do not appear starved, and you will have a grand head of bloom. A warm greenhouse is requisite to the perfect development of this plant, for if kept cool it does not flower until so late in the spring that the flowers are not wanted. There are several varieties, the best of which are *Retusa major*, *R. splendens*, and *R. superba*.

ROSEA is a fine plant for the greenhouse in winter and spring, and makes a pleasing clump in the sunny border during summer. Its aspect is always pleasing, as the leaves in summer are of a tender shade of green. In winter its leaves become delicately tinted with purplish red, and in spring it throws up a splendid head of flowers, which are accompanied with long rosy bracts, and at the same time the edges of the leaves become more deeply coloured. This plant is worth growing to specimen size, and as it grows fast the amateur may soon have reason to be proud of his possession.

SCHERI is a poor sickly-looking plant, not worth growing anywhere or anyhow.

SCAPHOPHYLLA is a fine globular plant in the style of agavoides, first-rate for bedding or pots.

SECUNDA is in the style of the well-known glauca, but more robust, and of a dark green, with a very slight glaucous tint. It flowers freely, and is decidedly effective as a bedding or basket plant.

S. H.

PRIMULA CORTUSOIDES AS A BEDDING PLANT.

BY GEORGE GORDON.



R. SAUNDERS, in speaking of this beautiful primula and its large flowered varieties in the June number of the FLORAL WORLD, expressed a doubt as to the varieties being suitable for bedding purposes, and I would like to remove the doubt by saying that they are the most valuable of spring bedders. They are as Mr. Saunders observes, perfectly hardy, and as the flower-stems are stouter and do not attain such a great height as when the plants are grown under glass, the weather does not materially injure flowers, even when most unfavourable. They may therefore be planted out without any anxiety being felt as to the probability of a failure occurring. This fact cannot be known too widely, for we have nothing else amongst hardy plants flowering in spring which will furnish the same rich purplish magenta colour as that of *P. cortusoides amœna*, which is the highest coloured of the series of varieties, as well as the most plentiful. Early in May last I had the opportunity of seeing large beds of it in Hale Farm Nurseries, Tottenham, and a more glorious sight could hardly be imagined. Some of these, Mr. Ware said, had been in the same position two years, others had

July.

only been planted the previous autumn, but all were alike densely flowered.

In raising a stock for next season, the best course will be to procure at once a few large clumps, divide them separately, and plant them out in a shady position. The soil must be rather light and rich, to induce them to grow away vigorously and produce strong clumps. If there is a difficulty in obtaining large clumps, small plants may be obtained and put out in much the same manner as offsets. It will be cheaper to buy now than to wait until the autumn, for those procured now, and managed as here advised, will acquire a considerable strength by the autumn, and bloom freely in the spring. They will in fact become as large by the autumn as those which will then be sold as extra-sized at a considerable advance in the price. There can be no question as to the desirability of selecting for the varieties of *Primula cortusoides* a rather dry and sheltered situation as the winter quarters. Of the hardiness there can be no doubt; for this season, although late in the spring the young growth of the majority of the hardiest of the shrubs was cut off by the frosts, the primulas were uninjured.

Mr. Ware also had a large house full of specimens in pots, and when I saw them they were so superbly flowered that a glimpse of them was sufficient to take one's breath away, and it was a difficult matter to decide which was the more worthy of admiration, the glorious beds out of doors, or the splendid display under glass.

The white variety, and the lovely lilac form known as *P. cortusoides lilacina*, are less effective out of doors than the variety mentioned above. They are however quite equal to many other spring flowers, and for pot culture are quite indispensable, as they produce a most pleasing effect when intermixed with the other things with which the conservatory is usually decorated during the spring season.

THE AMATEUR'S PINE PIT.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



EW amateurs engage in the cultivation of the pine-apple, some refraining from taking it in hand for reasons that are perfectly satisfactory, and others through labouring under the supposition that the expense is out of all proportion to the produce obtained. With this view of the case I am not prepared to agree, for although the outlay is considerable in providing fuel, the pine-apples are 'proportionately valuable, and with ordinary good management will yield as fair a return as any other fruit grown under glass. Apart from the pleasure which is naturally felt by a gentleman who, practically, manages his own garden, in putting on his table a pine-apple grown by himself, home grown pines are as a rule preferable; there is a certainty of their being perfectly fresh, and possessing that full

aroma and piquant flavour peculiar to them, which cannot always be ensured when they are purchased. Pine-apples can be kept a very long time indeed without showing any signs, outwardly, of their being any the worse for it, and not unfrequently they are so long on hand that they become flat and insipid as compared with those in perfection. Pines can be kept for a short time without detriment, indeed the flavour is improved thereby, but where too long a period elapses between their removal from the plant and their appearance on the table, they certainly do not improve in quality. How long a time pine-apples may be kept with advantage does not concern us at this point, and my object in alluding to it here is to show that pine growing has sufficient advantages to counterbalance its apparent costliness. Of course, in comparing the cost of the fuel with the produce obtained, it will be needful, to be able to strike a fair balance, to take into consideration the market price of the fruit, at the time it is cut.

The most suitable structure for the garden of the amateur is a span-roof pit, with a walk down the middle to admit of the stock receiving proper attention during the winter season, with a certain amount of comfort, and without exposing it to cold draughts, which are most injurious at all times, and especially so during the winter season. The width of the pit should be from nine to twelve feet, the length from twenty to forty, and the height just sufficient to afford head room. A height ranging from seven to nine feet, according to the length and breadth of the house, will be the most suitable. The largest sized houses are the best, because there will be no material increase in the cost of heating them. For an amateur not desirous of putting up a very large house, I would recommend a pit thirty feet long, nine feet wide, and seven feet high from the pathway to the apex. In a house of this size there will be sufficient space for a three feet path down the middle, and a bed of the same width on each side. For the better accommodation of the stock, about ten feet at the cool end should be divided off with a glass partition, and in this the suckers and succession plants whilst in a small state can be kept.

The young stock can, with this provision, have the temperature most suitable to them, and there will be no danger of their being "drawn up," as is frequently the case, when both small and large are intermixed together. Side sashes are not required, and to save unnecessary expense the rafters and the lower end of the roof lights may rest upon the wall plate; and for a house of the dimensions recommended as most suitable for amateurs, the side walls should be two feet less in height than the apex of the roof. The beds should be formed with brick walls, nine inches in thickness, to within eighteen inches of the top, and the remainder four-inch work. This will form a ledge upon which the cross pieces supporting the platform can rest. Small piers should also be built in the outside wall, at intervals of three feet, and of the same height as the ledge, to receive the other end of the cross-pieces. Piers formed with loose bricks would answer the same purpose, but it is preferable to build them in the wall, on account of their more substantial character.

The platform upon which to place the plunging materials can be formed with wood, but slate or iron is the most preferable, for they are more durable, and at the same time allow the heat from the pipes to pass through more readily. When planks are used, a space of an inch or so should be allowed between each, and a few pieces of slate laid over the space to prevent the plunging materials from passing through. I have dealt with these minor details more fully than may appear necessary, but it is these minor matters that frequently occasion so much trouble to amateurs.

Heating the pine pit must now engage our attention, and I would now avail myself of the opportunity of saying that one of the principal points in pine-growing is to have a good command of artificial heat. For a house nine feet wide there should be a flow and return four-inch pipe, extending the whole length of the house, on each side next the outside wall, and a flow and return on one side of the walk. With this amount of piping the top heat will be well provided for, and for the bottom heat a flow pipe underneath the walk on one side and the return on the other will suffice. They must, therefore, be kept low enough to admit of their passing under the pathway at one end without having to "dip," for with "dips" in the pipes the circulation does not go on properly. To economize the fuel as much as possible, and at the same time effect a considerable saving in the labour of attending to the fires, the pine pit should form an adjunct to the greenhouse or vinery, as the several structures can be heated by means of the same boiler. The pine pit should be nearest the boiler, and the pipes must be provided with valves, so that each house can be heated independently of the other, or altogether, as may be necessary. Tan or leaves are the most suitable plunging materials, but as the bottom heat is supplied with hot water, cocoa-nut fibre refuse, or even sand, would do very well for plunging the pots in.

Having described the best form of pit for the amateur, I will proceed to offer a few hints on the selection of the sorts, and the management of the stock during the several stages of growth. Of the comparatively large number of pine-apples in cultivation, there are only two that are of real service to the amateur, and these are *The Queen* and *Smooth Cayenne*. The first-mentioned is best for affording a supply of fruit from spring until autumn, and the other during the winter. The Providence, Enville, and other large sorts which are met with at the exhibitions are quite unfit for cultivation in a pit such as that described above, for the plants take up a lot of room, and the fruit is coarse and inferior in flavour. A good start may be made with suckers; indeed, if strong, they are preferable to plants, as they are lower in price and cost less for carriage. The principal point is to obtain them perfectly free from mealy bug and scale, for when infested with either of these pests they are practically worthless, and should be destroyed. The suckers should, if possible, be all obtained from the same place, and a guarantee that they are quite clean obtained. The present moment is most favourable for purchasing suckers, for if they are in good condition they will make sufficient progress to admit of their being potted again

early in September, but those potted up after the end of the month must not be shifted until the spring following, as they winter so much better when the pots are well filled with roots. Suckers with a good stout base are the most useful, and when they are received they should be sorted, and all that exceed fifteen inches in length will require eight-inch pots, and those of smaller size five and six-inch pots. Four or five pieces of rather large crocks, covered with the roughest portion of the compost, will suffice for drainage. To pot the sucker is easy enough, for it is simply necessary to place it in the centre of the pot, with the base resting upon the drainage, and then fill in with soil, and in so doing press it so firm that the pot and soil could, if needed, be lifted up by taking hold of the sucker. When potted, plunge the pots to the rim, and as the work proceeds arrange them regularly according to their height. Very little water will be required until the roots begin to run round the outside of the ball of soil, and then the supply may be increased moderately. In September the strongest may be shifted into pots two sizes larger, provided they have well filled the pots with roots.

In the spring following, the plants which have remained in the small pots through the winter will require a shift into eight-inch pots, and in August into ten or eleven-inch pots, which will be quite large enough for the final shift. The others will not require repotting, as the pots into which they were put the previous autumn will be quite large enough, and most probably some of them will show fruit towards the end of the summer; the others, if kept rather dry for two months or so early in the year, will throw up at the beginning of the summer. In subsequent years the better course will be to remove the suckers from the parent plant shortly after the fruit has been cut, and pot them at once. The strongest suckers only should be selected, and in case any of the plants produce a considerable number of suckers, as they frequently will do, they should be thinned down to the two largest. By this means strong suckers will be obtained without diverting the energies of the plant from the support of the fruit. A great saving of time will be effected, as strong suckers will arrive at a fruiting condition from six to twelve months before those of small size. By potting up the suckers as they are ready, a regular succession of fruit will be obtained, which will be of more importance to the amateur than a considerable number at one time. It is not difficult for the practical man to have the plants in fruit at any particular moment, but it would require too much space for the whole process to be explained here, and before it could be carried out in a thoroughly satisfactory manner some practical knowledge of pine growing is essential.

The stock should, as a rule, be overhauled twice a year—March and August—and those requiring more root-room shifted according to their requirements. As a rule, they will require repotting twice—the first from the pots into which they were put as suckers into eight-inch pots, and from these into the fruiting pots of eleven inches diameter. The pots must of necessity be clean and well drained, and the compost, which should consist of two parts of turfy loam to one part of hotbed manure, decayed to a powder, or horse droppings

used in a rather dry state. The loam must be used in a lumpy state, and pressed rather firm into the pots. At the same time as the plants are repotted, turn over and renovate the beds as required. If tan is used it will require sifting and the fine stuff removed. In adding new tan, put it at the bottom of the bed, and cover with the old portion remaining in which to plunge the pots. There will then be little danger of the roots being injured by an excessive heat. If any other material is employed it should be turned over at the times stated, and moistened if required, for when it becomes dry the heat from the pipes will not pass through it.

Pines must not have very liberal supplies of water at the roots, but the soil during the growing season should be maintained in a nice moist condition; at other times, just moist, excepting plants in fruit, and they will require rather liberal supplies at all times. Extremes are very injurious; for example, if they are kept too wet the roots will perish, and if too dry they will be thrown into fruit prematurely. Moderate syringing during hot weather is beneficial, but an excessive use of the syringe is injurious. It should, in fact, be only used by the amateur in May, June, July, and a part of August. During the remaining part of the year sufficient atmospheric moisture can be maintained by pouring water upon the paths and walls. In March and April the base of the plants and the surface of the beds and pots can be syringed lightly after a hot day.

The temperature of the house should range from 65° to 70° during November, December, January, and February; from 68° to 75° in March, April, September, and October; and in May, June, July, and August, from 75° to 80°. The night temperature should be five degrees lower, and in bright weather the thermometer may be allowed to rise from five to ten degrees higher than above stated, according to the season. The bottom-heat should be 75° from October to March, and during the remaining portion of the year 80° to 85°. The division set apart for the succession plants should be five degrees lower at all times than the remaining portion. This remark applies to both top and bottom heat.

BILBERGIAS.



BILBERGIAS are well adapted to the requirements of amateurs who possess the convenience of a plant stove. They occupy comparatively little room even when full grown, and can moreover be successfully cultivated without special skill, or any very great difficulties. As they consort well with the Tillandsias, Vriesias, and other bromeliaceous plants, they succeed admirably in the pine pit, as the temperature, atmospheric humidity, and other conditions most favourable for the production of fruit of large size and fine quality, are the most conducive to a healthy development of foliage, and the production of large highly coloured flower-spikes. When grown in the plant stove in company with the general collection, they should

have a light and warm corner assigned them. They grow freely in a shady position, but the flower-spikes are not so freely produced, and hence it may be inferred that free exposure to the light is one of the chief elements in the production of first-class specimens.

With reference to their cultural requirements generally, it may be said that they require a moderately open soil and well-drained pots. A mixture of turfy loam and fibrous peat in equal propor-



BILBERGIA MORELIANA.

tions, after it has had liberal quantities of small crocks and silver sand incorporated with it, is in every way suitable. The pots should as a rule be filled to one-third of their depth with broken crocks. As regards the supply of water, it will suffice to say that throughout the growing season they must not be stinted with moisture at the roots, and at the same time the centre of the plants should be kept full of water. During the winter season they must be kept rather dry at the roots, and the centre free from water.

July.

The beautiful *Bilbergia Moreliana*, of which an illustration accompanies these remarks, is a robust species of the most attractive character. The flowers are yellowish green, tipped with bluish violet, and set in pink calyces. The large handsome bracts which constitute the chief beauty of the flower-spikes are of a rich crimson, and with the flowers form a very pleasing and effective combination. A very full and accurate monograph of this interesting and remarkable family of plants has recently been contributed to *La Belgique Horticole*, by Professor Morren, the accomplished editor of that periodical, and to its pages we must refer those of our readers who may be desirous of making themselves thoroughly conversant with the characteristics of the whole of the known species. W.

POT CULTURE OF THE STRAWBERRY.

BY A KENTISH GARDENER.



STRAWBERRY culture in pots is increasing rapidly in favour amongst amateurs, for to obtain a few dishes of well-ripened fruit before the crops obtainable from the open beds have attained maturity is a feat of which the non-professional may well be proud. There are just sufficient difficulties in the management of the plants to give the amateur an interest in his work, and none of them are insurmountable. With a view to assist those who may be desirous of growing the strawberry in pots, for securing an early supply of fruit, I have prepared a few notes which cannot be otherwise than useful, for they contain the essence of nearly a quarter of a century's experience in the work. Before passing on to the cultural details, I would like to say that it is not needful to force strawberries that are grown in pots. Many amateurs suppose that when the plants are in pots they require the assistance of artificial heat to enable them to bring the crop to maturity, but it is not so, unless the fruit is required to be ripe at the earliest possible moment. Indeed, as light and air are such important elements in bringing the fruit to perfection, and developing its proper flavour, it is preferable when only one set of plants are grown, to bring them on without the assistance of fire-heat. As a rule, fruit produced in a cool house will be ripe quite six weeks or two months before that obtainable from the open beds. It will be seen therefore that with the aid of a greenhouse, or one of Boulton's frames or plant preservers, a most liberal supply may be obtained with no more labour than is attendant on the preparation and management of the plants. It may also be well to mention that the details of the management of a few dozen plants or several hundred does not differ materially.

As soon as the strawberry runners are formed, the work of layering them in small pots must be commenced. First of all prepare sufficient soil for filling the pots, and this should consist of three parts loam to one part leaf-soil. I prefer a rather heavy soil in this

stage, because it will retain moisture much better, and so reduce the labour of watering. Let the soil be sifted and placed upon the potting bench; then fill a number of three-inch pots, placing them on the hand-barrow as the work progresses. When the barrow is full, take it to the beds where the pots are wanted. Having selected the runners, place a pot under each, and secure it to the middle of the pot either by the weight of a small stone, or else use short pegs to keep it in its place; and in a short time they will emit roots. The number must be regulated by the space at disposal. A few more than the actual number required should be layered, as there are generally a few failures, either from weak plants or deformed crowns; at the same time I would caution the inexperienced reader against preparing more plants than he can house and care for properly, as it is a folly to prepare five hundred plants when the room will only admit of one-fifth of that number being cultivated with success. Having laid sufficient plants in the pots, and each one secured in its place, all those runners extending beyond the plants set in the pot should be pinched off, that all the strength may go to the plant it is desired to save. This done, the cultivator's only care for them for the next three weeks consists in keeping the soil in the pots well watered, that the roots may have every chance to grow, and to fill the pots full of roots as soon as possible. With the soil above recommended, watering must be attended to at least every alternate day, and in dry hot weather they would be the better for a good soaking every night. There can be no doubt it would materially assist the formation of roots in the soil in the pots if the pots could be plunged to their rims in the bed, as then the pots would not be exposed to the drying influences of sun and wind; and there can be but one opinion that the more moisture we can retain in the soil the more speedy will be the formation of roots. With ordinary care in watering, plants so treated will generally fill their pots full of roots in three weeks; that is, if they are moderately strong in the first instance. The young plants may then be severed from the parents, and be taken to some shady spot under a wall or fence. With abundance of water for a week in this spot, they will recover from the check received, and in a few days after will be in a fit condition to be placed in their permanent pots.

Shifting them into their fruiting pots must be done carefully, or they will not make a very satisfactory growth. The compost should consist of equal quantities of mellow fibrous loam and rotten dung from an old hotbed that has lain by for twelve months in a heap. To these ingredients add one-third of coarse sand (the sharper the texture of it the better), and to every barrow-load of this soil add about one gallon of soot. Let the whole be well mixed, but not sifted; only broken up with a spade. The pots should be clean and dry, and well drained. Six-inch pots are large enough for all ordinary purposes, for setting aside the bulk and weight of larger pots, I am satisfied that plants well grown in them will produce results equal to those in a size larger. The principle to be aimed at in preparing the plants is to secure an early growth; that is to say, to give every possible encouragement to them to fill their pots full of

roots before the cold nights and drenching rains of autumn set in. For unless they have done this, a weak succulent growth only is obtainable in the autumn, which every good gardener knows is not conducive either to health or fruitfulness. But with plants that have completed an early growth, with stout and prominent crowns exposed above the foliage, the chances are far more favourable, and they quietly go to rest with ample time to mature themselves, and to secure a season of dormancy before they are required for a more active life.

In potting there are two essential features to be observed. The first is to place the crown well up above the soil; the next is to make the soil firm and close round the roots. The object of placing the crown well up above the soil is to expose it to the action of the elements, that it may become plump and thoroughly ripened, which will greatly assist in the formation of the flower-buds for the crop. This is a process not visible to the cultivator; but there can be no doubt that when all the organs are full of health and vigour, and the plants going to rest, the essential organs of fructification are formed in embryo ready to be developed when a suitable temperature is given them. Admitting this, we shall at once understand how important it is that we should secure an early growth, so that there may be time for them to complete one of the principal processes whereby we secure a crop, and we shall understand, too, more readily the cause of failures in weak immature plants. The object in pressing the soil firm round the roots of the plants is to make sure that all the soil is well permeated with roots. That is to say, in a firm soil the roots will expand and distribute themselves, and so fill the whole mass of soil as they push towards the sides of the pots; whereas, if they are potted lightly the roots will start out at once to the outside of the pot, and the interior of the ball of earth will scarce have any roots at all, and will remain so until the plants are taken indoors, when a little excitement starts them again into growth, and the roots also. They have then the unexhausted soil in the middle of the pot to work in, which starts them again into a vigorous growth, to the utter consternation of the cultivator, who does not want leaves but flowers. The result is generally barren but leafy vigorous plants that more nearly resemble cabbages than strawberries. The object of the cultivator should be to secure *pots full of roots*, and this is particularly important for early crops. Having potted the stock and given each a good soaking with water, stand them on a firm hard bottom fully exposed to all weathers until the end of October, when they should be taken under cover. Keep them abundantly watered until the end of September when it may be slightly diminished. They should have all runners picked off as they appear.

A cold frame, with the lights drawn off in dry weather, affords unquestionably the most suitable winter quarters, as the stock is safe from an over abundance of water, and at the same time not likely to be excited into a premature growth. The soil must be maintained in a moderately moist condition throughout the winter. Towards the end of February the plants can be placed on a shelf,

near the glass, in the greenhouse, or the frame be kept rather closer to induce them to start into growth. When they begin to move increase the water supply. From this stage until the fruit is ripe ventilate freely in bright weather, and shut up the house or frame early in the afternoon to utilize the sun-heat as much as practicable. As they grow freely, syringe them once a day, but discontinue the use of the syringe when they are in bloom. The smallest fruit should be removed with a pair of scissors as soon as sufficient is set, and the syringing resumed immediately afterwards.

BRITISH FERNS IN CASES.



WHEN I fitted up myself two large fern-cases for indoors, I did as many other young beginners in fern growing have done, employed several species which require a stove temperature for their successful cultivation; and a partial failure was the result. I was anxious to grow some of the gold and silver ferns, one or two of the choicer adiantums and cheilanthes, and need I say no amount of care on my part would induce them to grow satisfactorily. These delicate kinds were intermixed with others in both cases, and in consequence neither had a satisfactory appearance long together. If strong plants were put out early in the summer, and they made a little new growth, they went back as soon as we had a week or so of cold weather, and the winter generally finished them off. At length I was tired of replenishing those tender kinds, and at last determined to fill one case with the greenhouse sorts which had been found to do well; and acting upon a hint in the "Fern Garden"—which I am bound to say has been of immense assistance to me—I resolved to fill the other with British species and their varieties. Since then everything has gone on smoothly; and the latter have done so well that I am really surprised they are not more frequently grown in cases. I hardly know whether to admire the case containing the Britishers, or the exotics, most; both are so thoroughly beautiful. Certainly the former are in no way inferior to the others. I think many amateurs would like to have a case containing representatives of the British species if they were aware how beautiful they look, and how easily managed they are. Their hardiness admits of the case being placed in the coldest position in the house, as for example, in a light position in the front hall, or near a landing window.

The case in which they are put is four feet in length, two feet in width, and thirty inches in depth; and it therefore affords sufficient space for a fair assortment. It is quite plain, and the ferns, in my opinion, appear to greater advantage than they do in these highly-ornamented contrivances. The base of the case is eight inches in depth, and the sides and bottom are formed with boards an inch in thickness, lined with zinc. The bottom is an inch lower in the centre than it is at the two sides, for the purpose

of facilitating the escape of the superfluous water; and this is produced by tacking other boards, cut to form the desired slope, to the bottom before the zinc is laid down. A small pipe, fitted with a tap, is fixed in the lowest part of the case; and by placing a vessel underneath the tap, shortly after the case has been watered, all the superfluous water can escape without a drop touching the carpet, as when it ceases to run freely the tap can be shut. The sides and ends consist of plain frames to hold the glass; and on the under sides are fitted with three and two pins each, respectively, to drop into receptacles on the upper sides of the base, and are held together with neat hooks at the corners. The top forming the cover is made in precisely the same manner as the sides; and the woodwork is stained a dark oak. Cases of this description are exceedingly neat, and cost very little indeed.

In selecting the ferns, preference was given to the evergreen species, because it is necessary that the case should present an appearance as attractive during the winter as it does in the summer. Consequently many of the beautiful varieties of the Lady-fern were passed by; to omit them altogether was out of the question, and to leave gaps in the winter was not desirable. I therefore selected four of the strong-growing varieties, namely, *Athyrium filix femina corymbiferum*, *A. f. f. grandiceps*, *A. f. f. plumosum*, and *A. f. f. Victoriz*, and kept them in pots, and sunk them in the soil, so that the bottoms of the pots rested on the crocks. In the autumn they are lifted out and four strong plants of the common Hart's-tongue are inserted in the vacant spaces, where they remain until the following spring. I have a goodly number of the crested *Scolopendriums*, and the long strap leaves of the common form contrast well with them, although not possessing the lightness and elegance of the fronds of the varieties of the Lady-fern enumerated above. All the others were planted out and have made most satisfactory progress since. A few that I purchased might have been done without; but the following are so good that they can be strongly recommended, and one plant of each will suffice for planting a case of the same size as mine. They are as follows: *Asplenium adiantum nigrum*, a pretty little fern for planting in tufts round the outside, and in pockets formed by projecting rockwork. Half-a-dozen plants of this may be disposed of with advantage in a case of a moderate size. *A. trichomanes* and *A. viride* are of a similar character to the preceding, and the number, as above mentioned, of each would suffice for giving a finish to the case. *A. marinum*, a moderate grower, with fine dark fronds. The *Athyriums*, as already mentioned. *Lastrea dilatata grandidens*, *L. filix mas cristata*, *L. f. m. grandiceps*, *L. f. m. polydactyla*, *Polypodium vulgare*, *P. v. cambricum*, *P. v. similacerum*, *Polystichum angulare Buckleyanum*, *P. a. cristatum*, *P. a. grandiceps*, *P. a. Wollustoni*, *Scolopendrium corymbiferum*, *S. crispum*, *S. laceratum*, *S. multifidum*, *S. ramosum majus*. The above mentioned are all exceedingly beautiful, and were selected from a stock comprising all the best Britishers in cultivation; nevertheless, I would advise those who intend fitting up a case with them, to select the varieties they like best of the

respective species. If they are unable to do this, they can copy out this list and send it to a nursery, with a full assurance of having varieties beautiful in appearance and distinct in character.

The case was first prepared by placing a layer of crocks over the bottom. The crocks were broken rather small, and spread over to a depth of about two or three inches. Over the depression in the centre they are rather deeper, and next to the zinc a few larger pieces are put to facilitate the escape of the water. The crocks were covered in the usual way to prevent the soil running down between them, and for this purpose we employed moss obtained from a shady bank. The case was then filled to the top of the base with a mixture of equal parts turfy loam and peat, and a fourth part of sand and small crocks in about equal proportion. The ferns were then planted at regular distances apart, and medium-sized rugged-looking pieces of sandstone, which I happened to have by me, put somewhat irregularly between on the surface. This addition relieves the flatness presented by the even surface of the soil, and the ferns have a more natural appearance, and altogether appear to greater advantage.

The only attention I have found them to require has been the usual watering, and the removal of decaying fronds. When they are watered, the top is left off until the fronds are partly dry again; for if the atmosphere is kept too close and moist, the young fronds will sometimes decay. In the summer they are watered overhead, but in the winter the water is poured upon the soil, and the fronds are wetted as little as possible. With this simple management I have a case of ferns that cannot be surpassed by a similar case of the choicest exotics. Those of which I have given the names are by no means common; and as a reference to a catalogue will show, they are more expensive than many of the exotics. I must not be understood as recommending any one to fill cases for the drawing-room with the common kinds that may be found in plenty in the hedgerows, for they are much too coarse, and altogether undesirable.

E. A.

RHYNCHANTHERA GRANDIFLORA.



RHYNCHANTHERA GRANDIFLORA, which forms the subject of the accompanying illustration, belongs to a family of plants comprising the *Lasiandras* and *Pleromas*, and like these and other *Melastomads*, it is remarkable for its free growth and attractive character when in bloom. It is a sub-shrubby species, native of North Brazil and Guiana, and as in the case of *Lasiandra macrantha floribunda*, which is also a native of the Brazils, it requires a stove temperature to maintain it in a healthy condition. The flowers, which are produced in terminal panicles, are of a deep rose; and, as may be readily inferred, good specimens are, when in bloom, wonderfully attractive.

July.

In the cultivation of the *Rhynchanthera*, as well as other melastomaceous plants, it is necessary, to secure good specimens, to commence with thrifty plants nicely established in small pots, or cuttings; for plants which have been kept starving in small pots for a considerable period, seldom, if ever, grow away freely, and form



RHYNCHANTERA GRANDIFLORA.

first-class specimens. The cuttings are easily struck, provided the growing points of medium-sized shoots are selected, and inserted in pots filled with light, sandy soil, and the pots plunged in a brisk bottom-heat. When nicely rooted, they must be potted off separately; and the best method of dealing with them is to put them in

three-inch pots, and place them in a snug corner of the stove, and where they can be kept rather close and shaded. Under these conditions, and the customary syringing overhead, they will quickly become established, and should then have the point of the leading shoot nipped out. As they commence to break freely, they will be advanced sufficiently to render a shift into pots one or two sizes larger needful to maintain them in full vigour. They should not, however, be shifted after the end of September, as it is better to winter them in small pots well filled with roots than in those of a larger size and only partly filled. To insure the production of bushy specimens, it will be necessary to stop the principal shoots two or three times when the plants are small, but severe stopping is not required. Excepting when they are newly potted from the cutting-pot or otherwise, they should have a light and open position in the stove. A compost of loam, peat, and leaf-mould in equal quantities, with a dash of sand, will be found suitable for the *Rhynchanthera* and other melastomads. For the figure of this fine plant we are indebted to the "Botanical Magazine," t. 6011.

TREE FERNS.

BY JOHN BURLEY, F.R.H.S., ETC.

Hereford Road Nursery, Bayswater, W.



IN continuation of my papers on plants of noble aspect suitable for the embellishment of the conservatory and winter garden, I will proceed to make a few remarks on tree ferns. These, as many readers of this are aware, are remarkably beautiful; in fact, quite unsurpassed in their way, and alike suitable for all classes of houses that will afford them sufficient head room. They are not more difficult to cultivate than the average of conservatory plants, and in some respects they require less attention; for when properly potted, supplying them with water constitutes the chief labour incurred in keeping them in good health.

Tree ferns are mostly common to the temperate zone, being found in abundance in Tasmania, the continent of Australia, and New Zealand, consequently they are well adapted for cultivation in structures from which the frost is excluded in winter. Some, as demonstrated in the sub-tropical garden in Battersea Park, are capable of producing a good effect out of doors during the summer season, provided they can enjoy the advantage of a sheltered and rather shady position. One of the most beautiful of the whole family, *Cyathea dealbata*, commonly known as the Silver Tree-fern, is said to have withstood the effects of the severe winter of 1865-67 in the gardens of Lady Lucy Tenison, Kilronan Castle, Carrick-on-Shannon, although placed in an open position without protection. This might be so, but I would advise those who cultivate arborescent ferns to keep them under cover during the winter, for there is a vast

difference between a plant being just kept alive, and one that is in the most robust health. For my own part I am opposed to putting tender things out of doors, for I hold that a hardy plant in a healthy condition is in every way preferable to a tender thing, which appears to have as much as it can do to retain a spark of vitality in it. There are several species which require the temperature of a stove for their successful cultivation, but it may be safely said that the most beautiful kinds are comprised in the conservatory or greenhouse section.

In commencing the cultivation of tree ferns, one very important step towards achieving success is made by commencing with established plants. They can frequently be purchased at auction-rooms in a dormant state, as received from their native habitats, but there is a great risk in doing so, for they are often quite dead; and if alive a considerable amount of skill is needful to induce them to start freely into growth. They are rather expensive to purchase, the price being regulated by the height of the stem, and the size of the head. Small plants of the majority may be purchased, and they are exceedingly beautiful; but with few exceptions, a considerable number of years must necessarily elapse before the trunks attain any considerable height.

All the tree ferns thrive in a compost consisting of equal parts turfy loam and fibrous peat, and a sprinkling of sharp silver sand and small crocks. The peat and loam must be full of fibrous matter, and used in a lumpy state, so as to admit of the roots running freely in it. The pots or tubs should be of comparative large size, and well drained, and when more space for the roots is required, they should have a rather large shift, for owing to their bulk they are not very convenient to move about, and an annual shift is by no means desirable. In potting them cover the crocks with a layer of moss in preference to rough peat or other loose material, and press the soil rather firm and equally all round.

Throughout the year specimens in good health will require liberal supplies of water, and special attention must be given to the watering when the plants are growing freely, for if they suffer then for the want of water, the growth will be checked, and the plants materially injured. The stems must be kept in a moist state both winter and summer, and this can be done very readily by syringing them as often as may appear necessary. When producing their new fronds, they will require syringing twice a day; at other times once will suffice. They must also be placed in a shady part of the house during the summer season, for when exposed to the sun the fronds quickly assume a yellowish colour, and have an appearance less pleasing than could be desired. But potted in a fibrous soil, and placed in a shady position and well supplied with moisture, they will grow famously and produce broad spreading fronds of the richest green imaginable. It is sometimes said that the brown stems of such kinds as *Dicksonia antarctica* are objectionable. For my own part I think they are very picturesque. If their appearance is objected to, it may be got over by obtaining some ripe fern-spores from any fronds, those of the Maiden's-hair being the most

suitable, and after daubing some wet peat over the stem, sprinkle the spores over it, or if more convenient, stick the fronds round the stem. In a short time scores of young ferns will appear, the stems will present the appearance of quite a column of delicate green vegetation, and the stems will not be injured by it in the least.

Very few kinds will suffice for one conservatory, because of the space a well-grown specimen will occupy. The most distinct and effective are in my opinion, *Alsophila australis*, *Cyathea dealbata*, and *Dicksonia antarctica*. If more are required, *Alsophila excelsa*, *Cyathea Smithi*, and *Dicksonia squarrosa*, may be selected with advantage; the two selections comprise the finest six greenhouse kinds at present in cultivation.

LATE PEAS IN DRY SEASONS.

BY GEORGE SMITH.



IT may be said with safety that in dry seasons like the present late peas do not afford an adequate return for the labour and the expense for manure incurred in their production. It is not sufficient that the peas are sown in well-manured ground in the usual way, for, in all probability, a considerable proportion of the crop will either perish outright or come into bloom prematurely. I am obliged, in compliance with the wishes of my employers, to maintain a supply throughout the season, and in dry summers, I need hardly say, my ingenuity is taxed to the utmost. In case any readers of the FLORAL WORLD may be desirous of obtaining late supplies, I have prepared a few notes on the subject, with the hope that they will be of assistance to them.

The main crop varieties, such as British Queen and Ne Plus Ultra, are quite worthless for late sowing, and we are, consequently, bound to fall back upon the early and second crop sorts. We make two summer sowings—the first early in July, and the second towards the end of the same month. I have found that for sowing at the end of the month *Kentish Invicta* is one of the best, as it is productive, and of fine colour and flavour. Another good sort is *Laxton's Alpha*, an early wrinkled marrow, not quite such a good cropper as the preceding, but it can be strongly recommended for sowing in gardens where there is a decided preference for wrinkled marrows. These, under the system of culture I have adopted for some years past, attain a height of three feet, and require stakes. For cultivating without stakes, two of the best sorts are *Multum-in-Parvo* and *Advancer*. But in my opinion the dwarf sorts are not so profitable as the others, for it requires as much labour to prepare the drills for them as for the taller sorts, and of course the crop is not so heavy. In sowing in the spring the dwarf sorts are all very well, as they can then be sown in drills two feet or so apart on the level. For sowing now, that is to say, the first week in the current month,

July.

Wonderful is decidedly the best, as it is a most excellent cropper, and in quality it is quite unsurpassed. What I do is to sow—say, for example—four rows of *Wonderful* the first week, and two rows each of *Kentish Invicta* and *Alpha* in the last week, and those who enter into the cultivation of early peas for late supply should sow in the same proportions according to their requirements.

The manner in which they are sown differs materially from the sowing of the early crops. The matter of principal importance is to maintain the soil about the roots in a cool and moist condition. To be able to do this, the peas must be sown below the level. We open out trenches twelve inches in width and eighteen inches in depth. Nine inches of manure is then placed in the bottom of the trench, and covered with six inches of the soil taken out of the trench. The surface of the soil in the trench is thus three inches below the general level, and this depth is increased by packing the soil in a ridge on each side. When the peas are watered, as they should be once a week, the drills ought to be quite filled with water, so as to thoroughly saturate the soil. The saving of labour in watering crops sown in drills is immense, for a man can fill the trenches in one quarter of the time that would be occupied in watering them properly when sown on the level, as the water runs away on the dry hard surface, and nearly double the quantity is required, besides the additional time required to apply it.

In the garden here we usually make the trenches early in the season, and plant lettuce and sow radishes in them, and by this means we secure two crops, with only one outlay of manure and labour. The trenches are just the place for the lettuce, and we obtain splendid examples with beautiful white hearts when our neighbours have a difficulty in filling the salad-bowl with very indifferent samples. The radishes are also much more crisp and juicy than those sown on the level.

CHOICE DINNER-TABLE PLANTS.

BY WILLIAM JOHNSON.



SUITABLE plants, when nicely grown, produce such a pretty effect upon the dinner table that it is satisfactory to note the fact that several of the horticultural societies offer prizes for plants adapted for the decoration of the dinner-table. Taking, as I do, a considerable degree of interest in the cultivation of plants for this purpose, I am exceedingly glad that these prizes are offered; for, judging from many of the plants submitted for competition, the proper characteristics of a dinner-table plant are as yet not so well understood as they should be. I have had an opportunity of seeing a very large number of collections which have been exhibited during the present and last year, and I am bound to express my surprise at the utter unfitness of many of the specimens staged. As these collections have been mostly

shown by professionals, it may be fairly concluded that a few hints on the selection of the most suitable plants for the dinner table will be of some service; for if professionals are as yet not well acquainted with the best plants for the purpose, it may be assumed that amateurs are in need of information. In this communication I shall speak of ornamental-leaved plants only, as they are in the ordinary way the most useful. They produce the best effect, and may be employed more frequently than those in bloom. In selecting the plants, those of slender growth and graceful habit should have the preference. The colour of the leafage is of secondary importance, for if the foliage is light and elegant it will not be of much importance whether it is green or variegated with yellow or red; the yellow variegation is the least effective. Plants of naturally small growth are, as a rule, the best, for they render repressive measures unnecessary, and they have a more effective appearance than those of larger growth kept to a small size by partly starving them. Those of a wide-spreading habit are also not desirable, because of their taking up too much space.

Amongst the palms will be found a large number of most valuable subjects. One of these, *Cocos Weddelliana*, may be considered one of the finest dinner-table plants we have; for it is of medium size, the leaves are finely divided, and they spread out regularly in the most graceful manner imaginable. *Calamis ciliaris* is also very beautiful; the leaves are not quite so finely divided, and the leaflets are rather broader, but the plants have a most elegant plumose appearance, and when from eighteen inches to two feet in height are simply superb. *Dæmonorops palembanicus* also has pinnate leaves, but they are larger than those of the preceding. It is, however, so elegant that in a small state it takes high rank amongst table palms. *Glaziovæ insignis* is somewhat similar to the first mentioned, but it is rather larger, and for the centre of a rather large table it is superb. *Kentia australis* is a handsome species, with pinnate leaves, and is well suited for those who cannot afford either of the foregoing; it also does well in a greenhouse. *Areca lutescens* is cheaper still, and in every way first class. It is of medium growth; the leaves are pinnate, gracefully arching, and the petioles and stem are yellow, giving the plant a most interesting appearance. It has the additional recommendation of cheapness, thrifty plants being obtainable for five shillings each at any of the principal nurseries. This palm does not form a tall stem like many other kinds, and it is consequently well adapted for those who have plant structures of rather small size. *Areca rubra* is similar to the preceding; the young leaves are of a deep bronzy red, changing to green; it is very cheap. *Euterpe edulis* is very beautiful in a small state, but it soon forms a tall stem, and, consequently, quickly becomes worthless for the dinner table. *Geonoma pumila* and *Welfia regia* also have pinnate leaves, but the leaflets are broader, and although most ornamental in the stove, are hardly required in conjunction with the foregoing. *Latania aurea* is a beautiful palm, with fan-shaped, deep green leaves, borne on orange-coloured petioles; it is rather expensive. *Thrinax elegantissima* is, perhaps, the very best of those with fan-shaped

leaves for the table, as it is not very dear, thrifty plants being obtainable for half a guinea or so. *Latania borbonica* and *Livistonia rotundifolia* are two cheap and pretty palms, with fan-shaped leaves, but they are not equal to the two species immediately preceding.

The beautiful *Aralia Veitchi* stands high amongst miscellaneous plants for the dinner table; the elegant digitate leaves are of a bronzy purple hue, and contrast well with the snowy table-cloth, burnished plate, and sparkling glass. It is very expensive, and, owing to its popularity and the difficulty in propagating it, is likely to continue so. *Aralia leptophylla* is not equal to the preceding, but it is very elegant, and a good substitute for it. The leaves are digitate, and the leaflets narrow. The best of the crotons are, in my opinion, *Croton angustifolium*, *C. Johannis*, *C. undulatum*, *C. Youngi*, and *C. Weismanni*. The first is cheap, but the other four are rare as yet, and command higher prices. The Madagascar sedge, *Cyperus alternifolius*, is pretty and easily grown, but, with so many beautiful palms available, hardly wanted. *Curculigo recurvata* has broad, spreading leaves, and by way of contrast is exceedingly valuable. It is also of free growth, and readily propagated. It is specially adapted for using on occasions when it may not be considered desirable to remove the choicest subjects from the stove. The dracænas furnish several most useful subjects, as the colours of the leaves are such as to present a most effective appearance when under the influence of artificial light. The most elegant of the green-leaved kinds are *Dracæna congesta* and *D. gracilis*. The leaves of the former are about an inch in width and fifteen inches in length, and as they droop at the points the effect produced by a plant well furnished with healthy foliage is exceedingly good. The leaves of the latter are not more than half an inch in width, and range from six to eight inches in length, and stand out horizontally; the blade of the leaf is of a peculiar shade of silvery green, with reddish margin. Of the coloured-leaved forms, the undermentioned may be considered the most distinct and beautiful:—*D. Cooperi*, an effective species, the leaves broad and drooping, and richly variegated with rosy lake on a bronzy ground; *D. ferrea grandis*, known also as *D. stricta*, leaves broad and upright, and beautifully variegated with bright red. These and the slender-growing *D. pulcherrima*, one of the new kinds, will suffice for any one collection. More could be named, but a greater number is not desirable. Moreover, a considerable number of the finest dracænas soon attain too large a size for the dinner table unless kept in small pots.

The lovely *Cupania filicifolia*, and its near allies, *Jacaranda Clausseniana* and *J. mimosæfolia*, are exquisitely beautiful, the leaves being as finely cut as the fronds of a maiden-hair fern, and even more handsome, as they stand out horizontally. They are, however, expensive to purchase, and very difficult to propagate; so difficult, in fact, that the most experienced propagators frequently fail in striking the cuttings. I am, therefore, afraid to recommend them strongly. I have only to add that all the subjects enumerated, with one exception, require a stove temperature.

GREENHOUSE RHODODENDRONS.

BY WILLIAM JOHNSON.



ALL the rhododendrons at present in cultivation may be turned to good account in the decoration of the conservatory early in the season, for by lifting those well furnished with flower buds, potting and assisting them with a brisk temperature, they may be had in full bloom whenever required. But it is not of these I now wish to speak, for I would like to direct attention to a few of the best kinds, which are too tender to be grown successfully in the open air, but are exceedingly beautiful and well adapted for greenhouse culture in pots. There are something like fifty species and varieties well suited for the conservatory, but as many of them are of large growth, and a considerable proportion of the smaller growing kinds have white or blush-white flowers, twelve or so will be quite sufficient for a house of moderate size. Those which will be mentioned as the most desirable are especially deserving of the attention of amateurs, for they can be grown most successfully without any very great tax upon the time and attention of the cultivator. Moderate-sized plants will, with proper attention in supplying them with water and repotting them when necessary, continue to produce a good display of flowers for many years, without becoming too large for the house. A shift every second or third year will suffice for maintaining them in the most robust health. From the foregoing remarks it will be gathered that a renewal of the stock and frequent repottings, which so perplex the amateur in the cultivation of a very considerable number of plants are altogether unnecessary. It is well that it is so, for the stock can only be increased with a tolerable amount of success by experienced propagators.

Those which can be the most highly recommended are *Ciliatum*, a neat dwarf grower, producing fine trusses of waxy white flowers. *Ciliatum purpureum*—this differs from the preceding in the flowers being stained with rosy-purple. *Jasminiflorum* is one of the very best of the section; it is very dwarf and neat, and even when six or eight inches in height it blooms most profusely. The flowers are pure white, tubular-shaped, not unlike those of the *Stephanotis*, and are produced in moderate-sized trusses. This usually blooms during the winter season, when its deliciously fragrant flowers are especially valuable. The following varieties of this useful species also possess great merit, namely—*Princess Alexandra*, flowers white, with pink stamens, similar in shape to the parent, but longer and larger; very free flowering. *Princess Helena*, delicately-tinted pink, bright red stamens; flowers similar in shape and size to the preceding. *Princess Royal*, rich rose-coloured tubular flowers. These are all similar in character to *Jasminiflorum*, and, like that species, succeed admirably in conservatories in towns. *Princess Alice*, has pure white bell-shaped flowers, possessing the most delightful fragrance. It is a variety of

Ciliatum, and in every way desirable. *Prince of Wales*, has flowers of a reddish-orange, and is highly meritorious. *Virgatum album*, is very neat in habit, and produces large trusses of pure white flowers.

They all thrive in good fibrous peat, to which a liberal sprinkling of sand has been added, and require well-drained pots. When the plants are small, they may be shifted annually, just after the new growth has been completed being the best time. Pots one size larger at each shift will suffice, and it may be well to state here that over-potting is most injurious to them. Specimens will not require repotting oftener than once in two or three years. They require moderately liberal supplies of water at all seasons of the year, more moisture being, of course, required during the spring and summer than in the autumn and winter, when they are enjoying a comparative state of rest. After the end of May they are better placed out of doors in a shady position, where they can remain until the end of September.

THE GARDEN GUIDE FOR JULY.

"Then came hot Iuly boyling like to fire,
That all his garments he had cast away :
Upon a Lyon raging yet with ire
He boldly rode, and made him to obay :
(It was the beast that whylome did forray
The Nemaun forest, till th' Amphytrionide
Him slew, and with his hide did him array :)
Behinde his back a sithe, and by his side
Under his belt he bore a sickle circling wide."

SPENSER.



THE garden flowers are now becoming less plentiful than they have been during the last month, yet there are sufficient to make a good display of colour, backed up, as they are, with the summer bedders and the spring-sown annuals. In addition to these two classes of plants, we may have delphiniums, pentstemons, antirrhinums, perennial phloxes, lupins, and lilies.

The garden work of July is similar in some respects to that of last month. Amongst the most important of the many duties requiring the attention of the cultivator is the budding of roses, propagating of herbaceous plants, pinks, and picotees, and the training of the growth of the fruit-trees, and the layering of strawberries for forcing or making new beds.

FLOWER GARDEN.—This garden ought to be unusually gay this month, for, with proper attention, the bedders will now be well established, and the flowering plants in full bloom. This is a most suitable time for propagating many herbaceous plants by means of the young side-shoots. Polyanthuses that are wished to be increased may be taken up and divided early in the month. The rose-beds must be looked over very frequently, and all suckers removed. The old flowering shoots should also be cut back, and the trees have a few

good doses of liquid manure to aid in the production of a good autumn bloom. Budding must be proceeded with; if the stocks do not run freely, a thorough watering will generally start them. The evening is the best time for budding. Towards the end of the month the wood will be in proper order for making cuttings. Evergreens may now be pruned, and their growth regulated. The annuals that are past their best should be cleared away, to prevent the garden having an untidy appearance. If it is intended to save seed from the herbaceous plants, cut the old flower-spikes directly the lower seed-pods begin to ripen, and stick them in pots filled with wet sand, and placed over a large sheet of paper indoors, to catch the seed. Where it is intended to increase the stock of pinks, picotees, and carnations, propagation must be commenced in the early part of the month, either by pipings or layers.

GREENHOUSE.—To take the place of flowering plants now being removed to the open air, introduce such ornamental-leaved plants as may be available for the purpose. Hard-wooded plants that flowered late, and were kept indoors to finish the growth, should go out of doors now. Roses in pots should be plunged, to prevent the soil drying up quickly, and rendering a lot of watering necessary. All soft-wooded stuff growing freely, such as petunias, fuchsias, zonal geraniums, browningias, etc., should be encouraged with liquid manure until they come into flower. Pelargoniums that have ripened their young wood nicely must be cut back to two or three eyes at once, and kept rather dry until the buds push.

STOVE.—The routine work of watering, air-giving, etc., must be well attended to. More air must be admitted, now the greater part of the plants have made the season's growth, to insure their thorough maturation. Achimenes and gloxinias will continue in flower much longer if helped with liquid manure. All subjects for winter decoration must have every encouragement to become strong by autumn.

KITCHEN GARDEN.—Surface watering does more harm than good; therefore, unless labour is abundant, and the time can be spared to follow it up, leave watering alone. Tomatoes ought to be stopped just above the cluster of fruit, and be well pinched in, if plenty of fine fruit is expected. Continue to plant out all the winter stuff as fast as possible; the evening is the best time. Keep the celery well watered, and plant out the main crop. Let every pod be removed from both runners and dwarf beans directly they are large enough for gathering. Sow the main crop of turnips, and successional supplies of lettuce, radish, spinach, small salad, a few rows of early peas, and a bed of cauliflowers. The principal crop of cauliflowers and French beans in bearing will receive considerable help from a thick coat of short litter or other mulching material about the roots.

FRUIT GARDEN.—Thin, stop, and train the young growth of wall and other fruit-trees. Thin out the fruit before it becomes too large. Proceed with layering strawberry-runners, both for forcing and making new beds. Plants layered in pots, and planted out when well rooted in thoroughly trenched ground, will bear well next summer.

PITS AND FRAMES.—Sow herbaceous calceolarias and cyclamens July.

for principal batch, and cinerarias and primulas for late bloom. Shift on, as it becomes necessary, those sown earlier, and do not let them get pot-bound at this stage.

FORCING.—Keep muscats going with a little fire-heat in unfavourable weather. In the late houses, where the grapes are swelling, the laterals must be kept stopped; but where they are stoning, a considerable extension of laterals can be allowed. The earlier houses, from which the crop has been gathered, must be thrown open as wide as possible, and the laterals allowed to grow freely for a short time, to help to swell up the buds. The foliage of peaches and nectarines must be washed with the syringe frequently after the crop is gathered, and all the air possible admitted. Cucumbers and melons must be kept well thinned out; the former should be stopped regularly at one joint beyond the fruit. The fruit-bearing laterals of the melons must be allowed to grow, and the others nipped off as fast as they make their appearance. Keep both well supplied with water, and give air early in the morning, to afford the foliage a chance of getting dry before the sun acts powerfully upon it.

NEW BOOKS.



VERY nice book by Mr. Burbidge, entitled *Domestic Floriculture*, has been published by Messrs. Blackwood and Sons. It treats of the cultivation of all the more useful window and balcony plants, and the employment of flowers for various decorative purposes, and contains a sort of dictionary of the more useful ferns, grasses, palms, and flowering plants, with brief hints on their cultivation. Mr. Burbidge, we are bound to say, is a practical man, and writes agreeably, and he has illustrated his very acceptable book with a lot of nice pictures.—*Wood and its Uses*, by Messrs. Eassie, of Gloucester, contains a mass of most valuable information on commercial timber, floorings, girders, roofing materials, joiners' work, contractors' plant, horticultural structures, emigrants' huts, and other temporary buildings, and tables of the strength of scantlings, etc. For such as need the information it offers it will prove invaluable.—Messrs. F. Warne and Co. have commenced the publication of a new and elegant edition of Miss Pratt's *Flowering Plants and Ferns of Great Britain*, which is to be completed in twelve divisions. We recommend those of our readers who want an entertaining and useful British Flora, to make acquaintance with this work, for it is one of the best of its class, both for fulness of information and accuracy.—*Will a Sewage Farm Pay?* by Lieut-Colonel A. S. Jones, is of course intended to answer the question proposed in the title. It is the most useful (because most practical and not at all speculative) of the many pamphlets of its class that have been published within the past few years. It is published by Messrs. Longmans.—Mr.

Van Voorst has commenced the re-publication of *Sowerby's British Wild Flowers*, to be completed in twenty-two parts, comprising figures of 1,780 British plants. This is the cheapest British Flora ever produced, but it has no beauty, and is to be regarded as a working book for those who mean it.—*The Amateur's Rose Book*, a new edition of which has just appeared, contains fully double the quantity of matter of the original work, with additional woodcuts and a series of coloured plates of roses. It has been so much rewritten, improved, and enlarged, that it might have been published as an original work, for in truth there is not very much of the "Rose Book" as it was, left in it. The changes that have taken place in rose culture during the eleven years this work has been before the public, are curiously exemplified, by comparing the first edition with the one now before us. The raising of briars from seed is a modern notion, the redoubtable Marechal Niel is a recent introduction, the English raised roses have but lately established their fame, the employment of roses for table decoration and the promotion of rose shows are new enthusiasms. In reference to these and other matters, there was abundant reason for revising and enlarging the Rose Book, and now that the work is done, we hand it over to the great public, trusting what has cost us much toil, and not a little expenditure of money, will prove sufficiently useful to justify our endeavours.—*The Pictorial World* was referred to, in our April Number, as a new venture. We have now to say of it that it surpasses our expectations, and in fact, it demonstrates what we supposed an impossibility, for it is a grand work of art, and its low price (threepence weekly) brings it within the reach of the great masses of the people. As a matter of course, it provides us with a pictorial record of current events, and takes us by means of pen and pencil to all parts of the world, to feast upon its wonders and explore its curiosities. But it is also a portfolio of idealistic productions, and gives us fine reproductions of first-class pictures as well as original designs, sketches, and plans, variously entertaining and instructive. The finished elegance of the sheet is one of its distinctive features, and its beautiful outward aspect is a fair reflex of its literary merit.—A new edition of the *Garden Oracle* has been published. There seems to be no end to the demand for this book. But we must make an end, for to be reprinting at this busy season is really a serious inconvenience. Friends who want copies are advised to order them forthwith, as we have determined not to reproduce the present issue, and of course it will soon be exhausted.

THE CENTRAL SOCIETY OF AGRICULTURE AND INSECTOLOGY OF FRANCE announces an exhibition to be held at the Palais de l'Industrie, Paris, from September 15 to October 11 of this year. The programme comprises useful insects, as silkworms, bees, and cochineal. The second division includes noxious insects, such as those which attack cereals, the vine, fruit trees, and vegetables. The third division comprises insect-devouring animals and birds. Foreigners are specially invited to take part in the exhibition; and further information may be obtained on application to the secretary, 59, Rue Monge, Paris.

July.

HORTICULTURAL AFFAIRS.



THE ROYAL HORTICULTURAL SOCIETY'S SUMMER SHOW, on June 4 and 5, was a grand affair. There were three large tents well filled. The largest of these contained new plants, stove and greenhouse plants, orchids, azaleas, and the rest of the grand subjects that lead the way in a first-class show in the month of June. Another tent was filled with hardy herbaceous plants, fruits, vegetables, and miscellanies. The third was occupied with Mr. Anthony Waterer's exhibition of Rhododendrons. As a matter of course, the great tent devoted to stove and greenhouse plants was the main attraction, and it is with great pleasure we record that it was full of good things, and contained somewhat more than an average of attractive and valuable novelties. This tent was laid out in the picturesque style, with winding walks and grass mounds, and on these the plants were arranged. We cannot spare the space necessary to give a complete report of this important gathering, but we would observe that our valued coadjutors, Mr. James, of Isleworth, and Mr. W. Cole, of Ealing Park, were amongst the leading prize-takers in the more important classes. One of the finest things in all the show was a basketful of the new *Saxifraga nepalensis*, from Messrs. Jackson and Son, of Kingston. This is quite hardy, and one of the pyramidal section, but surpasses that fine species in splendour, and is, without doubt, the finest saxifraga in cultivation. The leaves form a neat rosette; the flower-spikes rise two feet high, are delightfully symmetrical, and show hundreds of neat round flowers of a delicate, pink-tinted, white colour.

THE ROYAL BOTANIC SOCIETY held its second Summer Show on June 10, and although not quite equal to the first exhibition of summer flowers held on May 20, it was, on the whole, a most satisfactory gathering. Stove and greenhouse plants were, as usual, well represented, as also were orchids, fine foliage plants, and pelargoniums; several large and interesting groups of new plants were also contributed by Mr. B. S. Williams, and other trade exhibitors.

THE ROYAL BOTANIC SOCIETY, on the occasion of its special evening fête, to be held on Wednesday, the 8th inst., offer prizes for decorations for buffets, dinner-tables, and sideboards for hanging and rustic baskets, and for hand, ball, and bridal bouquets. The schedule comprises sixteen classes, six of which are set apart for ladies, and the others are open to all exhibitors.

THE CAMBRIDGE BOTANIC GARDEN is being improved by the re-arrangement of the collection of herbaceous plants, and the curator has made sufficient progress to justify a hope that the important task will be finished during the year.

THE GIANT PUFF-BALL (*Lycoperdon giganteum*), although one of the best of the edible fungi, must be eaten when quite young, for there is considerable danger in eating it when in a matured state. From the *Scotsman* we learn that Mr. Sadler, while preparing a lecture for the Edinburgh Pharmaceutical Society on edible and poisonous fungi, accidentally swallowed a quantity of the spores of a large specimen, and within the space of an hour and a half he was seized with severe illness, accompanied with violent pains, which were not subdued until nine days after the first attack.

THE SALE OF SPECIMEN PLANTS at Southgate House, the residence of H. L. Micholl, Esq., comprising 639 lots, realized £1,644 17s.

THE SALE OF THE MEADOW BANK ORCHIDS, comprising 900 lots, realized upwards of £2,000.

THE FLOWER MISSION, instituted last year by Miss Stanley, for the purpose of supplying flowers to the sick and poor, has, we are glad to learn, proved most successful. We learn that from thirty-five counties in England contributions poured in, in answer to an appeal made; and a weekly supply of country flowers was given to seven or eight hospitals, besides enlivening the gloomy houses of several hundred poor. It was new life to the dwellers in courts and alleys to see and realize the succession of the seasons by this means; and the flowers must have been a source of great pleasure to them.

OBITUARY.—We have to record the deaths of Mr. John Salter, the well known raiser of *Chrysanthemums*, and late of the Versailles Nursery, Hammersmith, at the ripe age of 77; and of Mr. George Glenny, the author of the *Properties of Flowers*, and other works on floriculture, at the age of 81.

ARABIS BLEPHAROPHYLLA, a somewhat stately perennial plant, with large flowers of a lively pink colour, is well figured in the *Botanical Magazine*, t. 6, 087.

EXHIBITIONS OF RHODODENDRONS.—Three exhibitions of Rhododendrons were held in the metropolis this season, and we are bound to say all were more or less good. The first and most important was that of Messrs. John Waterer and Son, of Bagshot, in Russell Square, which for extent, high quality of the varieties represented, and the abundance of bloom, has never been surpassed. The others were those of Messrs. H. Lane and Sons, in the gardens of the Royal Botanic Society, in the Regent's Park, and Mr. Anthony Waterer's, in the gardens of the Royal Horticultural Society at South Kensington.

MANCHESTER NATIONAL EXHIBITION.—The annual exhibitions in the Botanical Gardens, Old Trafford, have proved a series of successes both as representing horticulture, and as affording financial and scientific aid to the Manchester Botanical Society. We have never seen the exhibition house look more complete and beautiful than on the occasion of the last exhibition, for there were some of the finest orchids ever shown by amateur cultivators, and groups of gigantic stove and greenhouse plants. The great tent adjoining was arranged for effect with a gigantic bank of roses at the top end; and, in some respects, a more glorious bank of rhododendrons at the lower end. In entering this tent from the exhibition house, the visitors encountered a wonderful group of pot-roses from Mr. Turner, of Slough. On the lawn leading up from the entrance was a lavish display of garden implements, ornaments, and appliances, comprising plant-houses, boilers, engines, lawnmowers, and knick-knacks in the most astonishing variety.

THE GARDENERS' BENEVOLENT INSTITUTION has recently issued its annual report and list of subscribers. The number of annual subscribers has been increased considerably, and the income from all sources in 1873, inclusive of a balance of £367 19s. 4d. from the previous year, amounted to £1465 13s. 9d. Of this sum, £750 15s. was produced by annual subscriptions, and £405 6s. by donations at the annual festival. The balance at bankers has been increased by £20; £200 worth of stock has been added to capital, increasing it thereby to £8900, and £881 10s. has been paid in pensions and gratuities. Six pensioners have died during the year, and nine have been placed on the list, making, with the four elected in January last, a total of sixty-seven deriving support from the funds of the institution.

THE FLOWER SERMON in the quaint old church of St. Catherine Cree, City, was, according to custom, preached on Whit Tuesday, by the Rev. W. M. Whittemore, D.D., the rector. The subject selected for the discourse was the Cinnamon tree (*Cinnamomum verum*). The congregation numbered, it was estimated, two thousand persons, each carrying a bouquet of flowers, and the effect produced by this large array of bouquets was remarkably good.

A SECOND PORTION of the Meadowbank Orchids was sold by Mr. J. C. Stevens, at his rooms in King Street, Covent Garden, on the 17th, 18th, and 19th ult. The sale comprised fine specimens of Cattleyas, Masdevallias, Odontoglossums, Phalenopsis, Disas, and others, and the prices realized were exceedingly good.

MISS ANNIE HASSARD, a lady well known by her writings to our readers, was, on the occasion of the visit of the Czar, the Prince and Princess of Wales, the Duke and Duchess of Edinburgh, and other members of the Imperial and Royal families, to the Crystal Palace, intrusted by the Directors with the floral decoration of the state box, royal saloon, and retiring rooms, and, we need hardly say, they were executed in the most tasteful manner possible. In lieu of the usual velvet ledge to the front of the box, Miss Hassard provided an exquisitely-arranged bordering of flowers. In the box were several beautiful vases of flowers, and in the saloon were three vases, which are of the estimated value of a thousand guineas each. One of the vases was larger than the other two, and this was placed on a table in the centre of the saloon. It had round the outside a bordering of yellow and pink Roses and Callas, the yellow roses and callas being placed alternately between two pink roses. Next to the roses were large sprays of Astilbe and fronds of Maidenhair fern, and inside of these were sprays of the gracefully-arching Solomon's Seal, and rising up from the centre were spikes of the green-flowered and weird-looking *Ixia viridiflora*. Tastefully intermixed with these were flowers of *Lilium auratum*, Callas, and red Rhodanthes, and fronds of the Maidenhair fern; round the outside was a fringe of *Pteris serrulata*, with a few sprays of *Lygodium scandens* hanging over the sides. The smaller vases were placed on cabinets on

July.

each side of the saloon, and filled alike. Instead of roses and callas, as in the case of the larger vase, these had a bordering of crimson Pelargoniums and Stephanotis. The centres of the vases were filled with a light mixture of red and white Rhodanthes, Callas, spikes of the green Ixia, and fronds of the Maidenhair fern, and round the outside was a fringe of the fronds of *Pteris cretica albo-lineata*, with a few sprays of the *Lygodium* drooping over the figures that support the vase.

TWO NEW HYBRID *SARRACENIAS* have been recently introduced to public notice, and from their novelty, as well as for their beauty, have excited a considerable degree of interest. The first of these was raised at Glasnevin, by Dr. Moore, who exhibited it at the International Exhibition held at Florence, under the name of *Sarracenia Moorei*; and the other has been raised by Mr. Stevens, of Trentham, and exhibited at the principal metropolitan exhibitions by Messrs. J. Veitch and Sons, under the name of *Sarracenia Stevensi*.

EXAMPLES OF THE DOUBLE-FLOWERING *CINERARIAS*, to which Mr. Oubridge directed attention in the FLORAL WORLD for March last, were exhibited at a recent meeting held at South Kensington. The plants are dwarf and compact in growth, the flowers large and double, and the colours exceedingly rich and attractive. The doubleness of the flowers is produced by the dense manner in which the florets are arranged round the disc, and, although quite hidden, the disc is present precisely the same as in the single flowers, and there can be no question as to these flowers seeding freely. They are of greater value for decorative purposes, and for supplying cut flowers, than has been anticipated. The shades of blue, crimson, magenta, and rose are the most effective, and the tipped flowers the least so.

TO CORRESPONDENTS.

DWARF APPLE TREES.—*C. H. C.*—The best course will be to procure stunted trees on the Paradise stock in the autumn, and put them in as small a pot as possible.

A Subscriber.—The Soldanella possibly requires a lighter position than the one it now occupies. To induce the *E. Eucharis* to flower, keep it rather drier than usual for a period of six weeks or so, and then plunge the plant into a brisk bottom heat, and increase the water supply again.

X., Chatham.—The plant is the large-flowered Bitter Cress *Cardamine amara*.

SHRUBS.—*Inquirer.*—Head down the shrubs you speak of in spring; but if you wish to increase them by layers and cuttings, you must take off what branches you require for cuttings, and put them in this autumn. October is a very good time for putting in the cuttings, and for layering.

LIQUID MANURE.—*S. S.*—Peruvian guano mixed with water at the rate of 1 lb. to thirty gallons, and a quarter of a peck of soot added thereto, makes a capital liquid manure for almost any kind of plants. Let it settle before using. Whether in the shape of liquid manure or not, always use soft water when obtainable; but if you are compelled to use spring or pump water, let it stand exposed to the air some time previous to using to become somewhat softened.

Commelinea.—Your plant appears to be *Iris foetidissima*.

MOQUET FLOWERS.—*A. H. G.* asks what they are, and we ask for help to answer the question. They should be imitation flowers of some sort or other, but the term probably implies more than the literal translation of "moquet" to mock, and appears to want explaining.

RED SPIDER IN ORCHARD HOUSE.—*Old Subscriber.*—We are not in the least surprised at this pest getting the upper hand of you. It has been next to impossible to keep pot-trees properly moist at the roots lately; for no sooner are the trees watered than they are dry again. So long as you let the trees suffer for want of water at the roots, so long will you be troubled with red-spider. Syringe the trees thoroughly twice a day with pure water. Too much water at the roots will cause the stones to split.

T. C., Swansea.—The various kinds of gourds are named capriciously, not scientifically, so that what would be called a pumpkin by one might be called a

squash by another. As a rule, the pumpkins are very large and oblong; the gourds smallish and round, and high coloured; the citronelle very large and flattish globular, the colour yellow; the squashes not so large, but flattish, and often of two colours, the marrows are in shape and texture miniature pumpkins, and usually yellow or cream-coloured when ripe.

FERTILIZATION.—*M. N.*—The fertilization of a flower, no matter of what kind or by what pollen, whether its own or that of an allied species or variety, must really be studied in the garden; very little respecting it can be taught in books. You must discover for yourself when the pollen is fit for use, and when the stigma is fit to receive it. When seeds are ripe no one can tell the seed of one variety from another of closely related subjects.

W. S. W.—It is our rule never to recommend particular nurserymen for the supply of plants, seeds, etc., that are regular articles of trade. As an "Old Subscriber," you must have observed many times that we have given our reasons for this rule. Horticultural periodicals that name traders for the supply of this and that are never trusted by such as have had some experience of the world. The nurserymen who advertise in *THE FLORAL WORLD* can supply all the plants, etc., etc., that the readers of the work may require. But the Editor never has, and never will, puff anybody.

KEEPING RIPE MELONS.—*Amateur.*—A dry, cool, airy place is decidedly the best for keeping melons after they are ripe. We have kept them tolerably good for three weeks or a month after cutting. The exact time depends entirely upon what degree of maturity they had reached when cut. Fruit cut a day or so before it has become dead ripe will keep longer in a good condition than it will left on the vine a day or so after it is thoroughly mature. A week or ten days is quite long enough to keep them, no matter how they are gathered, for after that time the flavour becomes flat and insipid.

CYCLAMENS.—*F. W. W.*—The cyclamens should be repotted about the middle of August, and in the meanwhile keep them dry at the roots, and in a cool position. They succeed admirably in a compost consisting of good turfy loam, three parts, and well decayed hotbed, or cow manure and leaf-mould, a part each. Corns of the size mentioned will require six-inch pots, and should be buried to nearly two-thirds of their depth. Let the compost be moderately moist when used, and afterwards apply water very sparingly until the plants begin to grow freely. In fact, just sufficient only should be applied to keep the soil in a nice moist state.

VENTILATING PLANT STOVE.—*Amateur.*—A greater mistake could not exist than in supposing that stove-plants require very little or no air; for they receive equally as much benefit from that element as any other class of plants. Of course, those coming from tropical jungles do not require so much as others from the Cape. We cannot lay down any rule as to what hour of the day you are to give air, or what hour you are to take it off, but the plants should have air whenever the state of the weather will permit. Give more when the air is soft and warm than when it is cold and keen. All plant-stoves should have ventilators against the hot-water pipes, so that the air may pass over them and become warm before coming in contact with the plants.

ONCIDIUM PAPILIO.—*A. H.*—This is not the proper time to remove orchids from blocks, the spring being the most suitable, just before they commence the season's growth. As it has been removed from the block, affix it to another at once. As this is such a peculiarly neat-growing orchid, we prefer growing it on a block of virgin cork; fasten a little sphagnum moss over the block with a piece of matting, spread the roots out over this, and, after covering them with a little more moss, secure the plant to the block with fine copper wire, and suspend in the orchid-house; dip the block frequently into water, the same temperature as the house in which it is grown through the summer, and just often enough through the winter to prevent the bulbs and foliage from shrivelling. From 70° to 80° through the summer, and from 50° to 60° in the winter months, will be a good range of temperature.

HEATING GREENHOUSE.—*R. B.*—To keep up a steady heat with the lowest possible quantity of fuel, you will require four rows of 4-inch pipes the length of the house, two on each side, and two rows along one end, and a 24-inch saddle-boiler. For simplicity and economy you will find no form of boiler to answer your purpose so well as the old-fashioned saddle-back. You will require fittings

July.

for the boiler, such as doors and bars. With respect to the cost of heating the house, your best plan will be to write to a firm that deals in hot-water apparatus—and state the length and width of the house, and that you propose to have four rows of piping the entire length, a 24-inch saddle-boiler, and all fittings, and ask for the cost; you will then know to a penny what the cost will be.

PROPAGATING CLEMATIS.—*J. J. Seaton.*—Clematis are propagated by means of layers, cuttings, and grafts, but as striking cuttings and grafting require considerable experience to insure success, layering is the best method for amateurs to adopt. The shoots, as soon as they have become moderately firm, should be layered in pots filled with sandy loam. The best course is to place the pots round the plants, and then bring down the shoots, and, after cutting them partly through, peg them securely in the pot, and cover with sand, to encourage the emission of roots. The cut should be made in a slanting direction, and commence about three quarters of an inch below, and terminate at, the joint. In the spring the layers will, if they have received proper attention in the way of watering, be rooted sufficiently to admit of their separation from the parent plant.

CUCUMBERS IN FRAMES.—*B. S.*—Keep the shoots thinned out, to prevent the frame from becoming overcrowded, and stop the laterals, or side-shoots, one or two joints above the point of their emission from the main shoots, if there is no appearance of fruit. If the young fruit can be seen, stop one joint above it; this assists their development, and encourages the production of other fruit-bearing laterals. When cucumber vines are allowed to grow wild they seldom produce wood, owing to the strength going into the wood. Give plenty of air when the weather is any way favourable, and shut up close early in the afternoon, after giving them a skiff with the syringe. Cucumbers, after they have once taken firm hold of the soil, do not require shading; indeed, they do best exposed to the full light, with plenty of air, admitted by tilting up the lights at the back. After a period of very dull weather, it is as well to throw a mat over the frame for a few hours in the middle of the day, when it is followed with exceptionally bright weather.

EXHIBITION COCKSCOMBS.—*R. M.*—The grand point in the culture of Cockscombs is to have the flower very large and well coloured, the foliage healthy and without a spot, and well developed, and the stem so short as to be invisible. The best way of raising them is to sow early in heat. Prick out the young plants round the sides of five-inch pots, and give only water enough to keep them healthy, never to let them flag, but, above all things, to prevent any early luxuriance. When the plants meet, prick them out again to check them, and promote stubbiness of habit; and when they show bloom, select the best, and cut off the heads with five or six leaves only to each, and with two inches of stem to go into the soil. Pot these singly, within an inch of the lower pair of leaves in four-inch pots of rich soil; plunge in a hotbed, give shade and water. They soon root, and must then have moderate heat, manure-water occasionally, moderate ventilation, and plenty of light, and be shifted whenever the roots touch the sides of the pot. Thus you will have an immense breadth and luxuriance of plant without any lankiness of legs. It is now too late to commence the cultivation of cockscombs this year.

PROPAGATING PANSIES.—*W. Smith.*—You can easily increase the stock by cuttings; few things are so simple. If you have but half-a-dozen cuttings of a choice kind, your best plan will be to take six-inch pots; put plenty of drainage in the bottom, mix up some nice light loam and leaf-mould, adding sufficient sand to make it feel gritty; fill the pots with this, and then on the top put a layer of silver-sand. After this is done give it a watering with a fine rose, to make it firm and in a suitable condition for the reception of the cuttings. Short-jointed side-shoots are the best; and in preparing them cut close under a joint and remove the lower pair of leaves. Dibble them firmly in the sand, and after watering liberally, place the pot in a cold frame or under a hand-light. A simple way of dealing with a large number of cuttings is to make a bed for their reception under a north-wall, or failing that, in the open ground; in the latter case, the bed must be shaded from the sun with mats or other covering. The bed should be about three feet wide, dig it up deeply, mix a little sand with the surface soil, and beat it firm with the back of a spade. Cover with a layer of sand, and after watering dibble the cuttings rather thickly in rows six inches apart. Shade and water when necessary.



· CALOCHORTUS VENUSTUS.

THE CALOCHORTUS.

(With Coloured Illustration of Calochortus venustus.)

LEW of the less known hardy and half-hardy bulbs so well deserve the attention of amateurs as the Calochortus. That it is comparatively unknown is no fault of ours, for we have many times directed attention to it, and have immediately received many letters of inquiry for its whereabouts in the seed and bulb trade. Five-and-twenty years ago I obtained, through a friend from California, bulbs of *C. venustus* (here figured) and *C. luteus*, which is equally worthy of a coloured plate. They were grown with ixias and sparaxis, and gave no trouble at all, and they were so easily multiplied by seeds and offsets that I was soon in possession of more stock than I needed, and parted with the surplus to friends in the bulb trade, for the calochortus, though well known as a book bulb, was not known in the market. Whether my frequent recommendation of it and occasional distribution of stock should entitle me to the credit of having made a trade plant of it I will not inquire, but I must record the fact that it may now be found in several of the current bulb catalogues, and Mr. Bull, of King's Road, Chelsea, has lately introduced a series of new species, the merits of which I have yet to discover by the simple and pleasing process of growing them. I observe also that several are entered in the catalogues of Ant. Roozen and Son, Overveen, near Haarlem, and in the lily list of Messrs. Teutschel and Co. of Colchester.

The Calochortus is a liliaceous plant, characterized by the three distinct and bold divisions of the perianth, which in all the species are prettily marked, and in the characteristic *C. venustus* are brilliantly painted, and suggest to the fancy a butterfly with expanded wings. To grow any of the species is easy enough. In a sheltered peat border, in which ixias thrive, they may be planted in August and September, and left to themselves, for they are as hardy as ixias certainly, and probably some degrees hardier. I have never so grown them, but have always treated them as pot plants, potting them in sandy peat, or a rich and light loamy compost, and giving them cool greenhouse or frame culture all the winter. They come into flower at a time when choice plants are scarce, and are at their best in the latter days of August and early days of September. As soon as their leaves begin to die down, they should be repotted to insure a good bloom the following season. They make seed freely, and the seed should be sown in boxes as soon as ripe, and treated the same as lily seeds—that is to say, the boxes should be kept in a brick pit, somewhat shaded and always moist. S. H.

THE GENUS ECHEVERIA is carefully reviewed by Professor Morran in the *Belgique Horticole* for May and June of the present year. The article is accompanied with a figure of *E. gibbiflora*, v. *metallica*, and a few useful woodcuts.

WATER PLANTS WITHOUT WATER.



VERY many amateurs would enjoy the making and managing of a garden of aquatic plants, could they but see the way clearly to some reasonable degree of success. I gladly confess that a new light has dawned upon me in reference to this subject, and I hasten to declare and to prove that a considerable number of the most beautiful aquatic plants may be grown to perfection without the aid of river, lake, pond, or even washing tub. I am indebted to the water rats for this new lesson, and I really think, instead of endeavouring to lessen their numbers, as I have been, I ought to encourage them in the hope that they will in due time teach me something more.

Having a suitable piece of water in the form of a small lake in one garden, and a pretty brook in another, the brook always flowing and keeping the little lake well supplied with pure water, it was but proper I should resolve to form a garden of aquatics. Accordingly, in the autumn of last year, I obtained from Mr. Ware, of the Hale Nurseries, Tottenham, a nice lot of hardy aquatic plants in pots, and they were carefully stowed away in a cold pit until the month of April last past. They were then in nice condition, and were planted carefully in sites adapted to their several habits, some in deep water, others in shallow, etc., etc. The voles or water rats, of which we have a considerable number, attacked my pets immediately; they nibbled them and trampled them, and soon killed a large number outright. I set traps and resorted to other methods of procedure, but while I waited to catch one vole, my plants were going, going, at such a pace that I gave up the conflict, and determined to save the wreck of my collection. It was late in the month of May, when I made this resolve. I dug up the best of the remaining plants and potted them in pots, rather small for the size of the plants, filling the pots with clay and a little rotten manure, and with only one flat crock over the hole in the pot. Every pot was stood in a pan or saucer of the kind ordinarily made for the use of pot plants, and they were kept in a rather shady place until they began to grow. A few started splendidly at once, others were slow to move, but as they gathered strength, I put them in the full sun, and of course they were liberally supplied with water, and being in pans, the bottoms of the pots were always in about one inch depth. I am now delighted with the beautiful and promising appearance of the plants. A tuft of *Alisma plantago* in a ten inch pot has been in flower some time, and is a much more beautiful object than I could ever have supposed it would prove as a pot plant, although because of its beauty I allowed it to remain undisturbed among the water cresses, for I love to see its lace-like panicles of pinky-white flowers in the month of July, when its handsome leaves and three petalled flowers are both at their best. The noble *Typha angustifolia* has not flowered, for it was pretty well devoured, but it is a plant once more, and promises to do its duty. The brave *Butomus umbellatus*, the double *Caltha palustris*, the variegated forms of *Iris fœtidissima*,

and many more fine subjects that I will not weary the reader by enumerating, are thriving in a most satisfactory manner, and the only peculiarity of their condition is that they stand in one inch depth of water owing to the pots being placed in pans.

It will be observed there is nothing new in this at all. And yet it has been the rule to call for a river or a pond for the cultivation of aquatic plants. As a matter of course, plants that require to be submerged, such as the water lilies, could not be grown in this way, but the system will suit for all waterside and marsh plants, and is capable of considerable extension. For example, I have grown *Spiræa palmata*, *Enothera Fraseri*, *Lilium giganteum*, *Astilbe Japonica*, and many other moisture-loving plants in this way, and have been rewarded with a wonderful development of their several ornamental features, while if left to themselves in the common border, these plants do not here attain to anything like perfection.

So also the system may be developed in another direction. It would cost but little to provide a few long troughs in the fashion of those provided for horses at roadside houses, and with the aid of these, the amateur who is not tied up to bedding plants might find immense pleasure in the cultivation of hardy and half-hardy aquatics, as, being all in pots, any of the plants could be wintered conveniently in a brick pit, or even in a shed, if allowed plenty of air and light except in frosty weather.

S. H.

SHRUBBY VERONICAS.

BY W. BRADBURY.



SHRUBBY VERONICAS have been sufficiently recommended in the FLORAL WORLD, and therefore I need not begin by extolling them. But a few words on their cultivation may be useful now, and especially to those Londoners and others who are likely to visit Worthing, Ventnor, and other places where the shrubby veronicas may be seen in the highest perfection. Where they can be grown in the open ground, as in the "kind climates" just mentioned, there is no need for advice about their management, for they manage themselves, but in places where severe winters kill them out they must be grown in pots, and then a little management is required. I shall be very brief in my remarks, but I hope quite to the purpose.

The shrubby veronicas will grow in any fairly good soil; but to do them well they should have a compost of equal parts turfy loam and rotten hot-bed manure, with some coarse grit added to prevent the soil caking into cement. The amateur must bear in mind that they are hungry and thirsty plants, and should be potted on as fast as they fill the pots with roots, and every spring be shaken out and pruned back and potted in smallish pots to start again for the season's growing. Plenty of water must be given all through the

August.

growing season, and they should never be dry in winter. When I meet with pot veronicas in an amateur's garden, I generally observe that they are leggy through starvation and want of management as to stopping. Training they never need, as they form handsome bushes without it, but they must be systematically stopped by nipping out the points of the shoots, and shortening with the knife any branches that are ugly or too long. The consequences of regular stopping—say three times in the season at least—will be that the plants if well fed will be dense, healthy handsome bushes, and they will not flower until wanted. It is simply a vexation to see these plants in flower while the geraniums and lilies, and other summer flowers, are at their best, for while the very gay flowers are out it is impossible to see the beauty of the veronicas. But pinch out the points or prune back with the knife in April; stop again by pinching the first week in June, and again the middle of July, and you will have no flowers until September, and then you will be glad of them to keep the conservatory, the terrace walk, and the entrance court gay until Christmas. They mix well with chrysanthemums, and are invaluable for late autumn and early winter flowers, but to have them in flower in summer is simply to have them at a disadvantage, and find they represent a sheer waste of labour.

To winter them a cool house or shed is quite enough. They might be laid on their sides and packed in a sheltered corner, with litter over the pots; any sort of shelter will do that is most convenient, for they are nearly hardy, and only need to be protected from the severest frosts.

As to propagating the plant, it is so easy a task that I need say but little about it. Cuttings may be struck at any season, but I find I can make the best plants by taking off the young shoots in the middle of May, and striking them in a cucumber frame; they then have the summer before them to make themselves, and are fine plants in 48-size pots long before the growing season is over.

Probably very few of your readers have any idea of the splendid varieties of veronicas that are now in cultivation. I obtained two years ago, through a London house, from Mr. Cannell, of Woolwich, a set of twelve new varieties, having already many grand specimens of the older sorts, such as *V. Lindleyana*, *V. Andersoni*, and the variegated variety of the latter which makes a grand bedding plant. I will hastily describe my recent acquisitions from notes made last autumn.

ADOLAR HERLL is a fine free-growing plant, with large leaves and stout wood. The flower-spikes are produced in prodigal profusion, the colour rich deep carmine. This would make a gorgeous bed in a sheltered garden, and it is a grand pot plant.

MADLLE. CLAUDINE VILLERMOZ is wrongly described in all the catalogues. It is a robust habited plant with large glossy foliage. The spikes are produced in great profusion; the colour, a rich pure violet—the very shade of violet employed in priestly vestments. This also would make a fine bed.

MARIE ANTOINETTE, in growth robust, the leafage dull green; the flower is a pleasing shade of pink.

CREME ET VIOLET.—A very compact growing small leaved plant, flowering late, the flower pale pink shading into purplish rose; the distinctly projecting stamens violet. An extremely pretty variety.

IMPERIALIS.—A bold habited, robust plant, with glossy dark green leaves, borne on short purplish foot-stalks. The spikes are large, bright rose red, with conspicuous white stamens. A really grand variety flowering late.

ROSEA ALBA.—Robust and bushy, leafage light green, the flowers lively colour with conspicuous white stamens.

CELESTIAL the neatest and nicest grower in the collection, the leaves being small and closely set and of a grass green colour. I have not been pleased with its flowers, which are produced in smallish spikes of a sky blue with white centres. Probably it would make a fine bed, in a sheltered or seaside garden.

BLUE GEM appears to me to be better adapted for market growers than for private gardens. It is quite a miniature with wiry habit, small leaves, and pretty smallish spikes of light blue flowers. A great lot of it has a pleasing and very distinct appearance, but a single plant looks like nothing at all.

I have, in addition to the foregoing, *Gloire de Lyon*, wiry habit, small leaved, flowers blue and white; *Aspasia*, carmine rose; *Belle violette*, violet and white; *Miniature*, reddish violet.

Would not these plants prove invaluable in London walled gardens, where frost would rarely hurt them, and they would mix with chrysanthemums admirably?

MIGNONETTE FOR WINTER.

BY W. COLE,

Head Gardener, Ealing Park.



THIS annual, for so we are bound to regard it, is held in high estimation by all classes, and its cultivation for summer decoration is well understood, and it would be superfluous to allude to it; but it is not quite so easy to insure a supply during the winter, and I hope to give a few hints upon the subject that may prove useful.

The grand point is to commence early enough, for if the proper season for sowing the seed is missed, the results will not be so satisfactory as could be wished. After many years' practice, I have found the first fortnight in August to be the most suitable. A simple course of procedure should be adopted by amateurs, and, instead of attempting to grow standard and pyramidal specimens, it will be better to be content with neat bushes such as I shall advise. To produce specimens of large size, a considerable degree of skill, much hard work, and plenty of space are requisite. As the mignonette does not transplant well, it should be sown in six-inch pots, and the plants thinned out as soon as they are large enough to be taken hold of with the thumb and finger. Prepare the pots by placing a layer of rather small crocks in the bottom; then cover

August.

these with a little rough stuff, and fill with a mixture consisting of equal parts of turfy loam, peat, and well-decayed cow or hotbed manure, and a small proportion of sand. Press the soil moderately firm to prevent its sinking afterwards, and make the surface quite level. Sow the seed thick, cover lightly with a little fine sandy soil, and place in a frame, where it can be kept close until the young plants make their appearance above the surface. Until such times as the seed has germinated, keep the soil in a moderately moist state only, for an excess of water supplied at this stage would tend to cause a sourness of the soil, with the consequent result that the growth would not be thoroughly satisfactory. Immediately the young plants can be seen admit a little air, and as they acquire strength ventilate more freely, as it is of the highest importance to secure a stocky growth. Water can also be more liberally supplied.

When the plants are large enough to handle conveniently commence to thin, removing a few at each thinning to prevent overcrowding, and at the same time allow sufficient time for the plants to show which are likely to make the most satisfactory progress. At the final thinning reduce to six in each pot. They can remain in the frame until the second week in October, and be then removed to a shelf in the greenhouse, where they will enjoy the advantages resulting from a free circulation of air. It is preferable to place the stock in a pit which can be heated at pleasure, because the plants can be kept near the glass, and receive whatever attention may be necessary without interfering with anything else; but a shelf in the greenhouse will do very well indeed.

When the pots are well filled with roots, shift a portion of the stock into pots one size larger, and remove the flower-spike from the main shoots of all the plants shifted. Use at this shift a compost prepared by incorporating together two parts turfy loam and a part each of peat and thoroughly-decayed manure. The other portion will be required for flowering early, and should not be shifted or stopped. If the stock is large, a portion of the batch shifted may be repotted again in January, and have the flower-spikes removed from the laterals to encourage the production of side shoots, and for retarding the flowering season. A few neat stakes should be employed to support the principal shoots.

As regards the selection of sorts, it is not needful to say much; but as there is a considerable difference in the various strains I would observe that for pot culture the *Bouquet pyramidal*, *White flowered*, and *Nana compacta multiflora* are the best. The last-mentioned is dwarf and free flowering, and the white-flowered is remarkable for its sweetness. The first-mentioned is especially adapted for large bush specimens.

FLORA OF JAPAN.—A valuable contribution to our knowledge of the Flora of Japan and Mantschouria is in course of publication in the *Bulletin* of the Imperial Academy of St. Petersburg. M. Maximowicz has communicated to the Academy a series of papers, entitled, "Diagnoses Plantarum novarum Japoniæ et Mandshuriæ," in which he gives technical descriptions and diagnostic characters of many of the plants of these countries.

GARDENING FOR INVALIDS.

BY MISS HOPE JOHNSTONE.



THE FLORAL WORLD has always taken so kindly an interest in everything likely to promote the pleasure of amateur gardeners, that I am tempted to ask leave still further to trespass on the indulgence of its readers, by stating, as briefly as I can, a plan which may possibly supply a fresh phase of indoor gardening, and thus open, to invalids and others, a new source of entertainment and interest. I mean the cultivation of bog or marsh plants.

A charming group of bog plants was lately brought in from the hill-side by a friend, and placed in a soup-plate with some sphagnum moss, and it was then suggested that, as we already have indoor ferneries, why should we not also have indoor marshes or bogs? Marsh plants are always interesting, and in some cases extremely beautiful. They do not often attain any great height before they flower, and thereby seem particularly well fitted for room culture. Nor do they absolutely require much space. The little group already alluded to consists chiefly of bits of fine mossy turf, such as could be covered by the palm of one's hand; one piece, measuring hardly more than two inches across, contains three seedling *heaths* and six or seven tiny plants of *sun-dew*. To these we added a plant of *Pinguicula vulgaris*, with a frosted rosette of delicate green leaves and violet-like blossoms, and a spray of *Cranberry*, with a red stem and little pink flowers, reminding one of tiny cyclamens or Turk's-cap lilies. This altogether forms a delightful little group, which might easily be contained in a saucer, and covered with a large tumbler.

Speaking of *Pinguicula vulgaris*, or the Butterwort, a writer in a weekly paper warmly urges its cultivation on all lovers of uncommon plants. He says he finds it thrives well when planted in peaty turf or loam, the pot standing in water in a cool greenhouse. When treated in this way it flowers admirably. Some plants taken up and potted, had, in the third year, made great tufts, containing eight blossoms, either expanded or in the bud state, at one time, and were exceedingly beautiful. Its mode [of propagation seems also most curious and interesting. He says, "Each large plant, when the season's leaves die off, appear thickly surrounded with numerous small offsets, which the parent plant seems to have the power of scattering to some distance, as I have frequently seen them lying on their sides, an inch away from their birth-place, in which position they take root and form separate tufts in a short time." "H. S." then adds that though these young plants do not make any display for a year or two, yet they are well worth waiting for, and he again strongly recommends them to the notice of his readers. It is not at all a difficult plant to obtain, as it grows in some localities plentifully in brooklets and ditches by the road-side.

Another singular plant is the sun-dew (*Drosera rotundifolia*).

It has little fleshy round heart-shaped leaves of the most delicate green, and bristling with scarlet spines, each one of which is tipped with a tiny drop of dew. A thousand charming legends might be invented about these little jewels—diamonds—tears—what you please to name them; but there is a dark rumour about the plant which says this fair siren is a very Jezebel, a ghoul, an arch deceiver, who lures poor unsuspecting flies to their destruction with these jewelled tears. It not only holds them fast, but apparently gobbles them up. Some aphides we placed on a leaf disappeared bodily; the spiny fingers were closed, but we could find no trace of the hapless victims. A small fly it held tight (we had killed it first), and a few days afterwards its body was a shapeless mass in the clasp of the leaf, the wings having vanished. Now the little red spines are opening again, perhaps to throw it off, as having served its purpose of nourishing the plant. This is certainly a most curious little plant, and would make an interesting study to a close observer. Perhaps some of your readers could tell how it feeds? Is the dew-drop some kind of acid which dissolves parts of the body of the trapped insect suited to its nourishment? Or are the spines so many tubes which have the power of absorbing all the moisture from the animals caught in their toils? However this may be, it is an exceedingly fair plant, shading into the reds, greys, and greens of the sphagnum moss, with a brilliancy hardly to be equalled.

But once more to return to our tale. For starting an indoor marsh like the one proposed, a soup-plate or common milk-pan would make an excellent foundation, or if it should be found necessary to buy anything expressly for it, a zinc pan fitted with a tap, to let off any surplus water in case of its being found needful, might be an improvement; though hitherto we have never found the soil in the milk-pan become sour or unpleasant in any way. This pan could, when planted, be dropped into a round bucket, which would make all neat, as far as the outside is concerned.

In planting we now always half fill the pans with charcoal in lumps and dust, a little of which we mix with the soil. This latter is carefully looked over for worms, etc., and placed upon the charcoal, so as to fill the pan to the height desired, always allowing for a slight rise of ground consequent upon planting little turfs, etc.; all this is now scalded with a kettleful of really boiling water, which will, of course, settle all question as to the possibility of any living creatures lurking amongst the earth. But as it is a well-known fact that the eggs of some insects can withstand great heat, we put a bell-glass over the soil and place it in the sun to steam, in the hopes of inducing any possible remaining eggs to hatch. After a few hours this water is all poured off and the earth scalded again, which has the advantage of doing away with anything that might otherwise prove offensive. When the soil has become sufficiently cool, the plants, etc., can be gently sunk in their places in the slime and the glass replaced. If the soil in some parts of the basin were raised, so as to accommodate plants which like a moist climate, though they will not thrive if actually touching the water, an endless variety of plants, mosses, and lichens, to say nothing of

smaller kinds of fungi, might be secured, forming tiny gardens of very great beauty and interest.

A simpler mode of preparing the soil for anything of the kind, and which would probably be found to answer quite as well, is to scald some earth in a pan, which is placed on the side of the fire or in the oven, and allowed to bake till dry. At any rate it will be found a convenient plan for persons who have no garden to keep a little supply of this prepared mould on hand, for potting small things or treasures, as all plants we have tried seem to thrive well in it.

A bog of the kind described above is, by the way, a capital means of propagating ajugas, which are extremely pretty, and ought to be seen in plenty in all gardens where there are suitable rockeries for them. They will in the little bog make roots in a few days. Lately I struck some in this way, and they did remarkably well. They lost a little of their colour from the heat under the glass, but soon recovered when planted out of doors. Some young tops of Mediterranean heath put in at the same time, evidently enjoyed the warm, moist air, and made roots in a satisfactory manner.

FANCY PELARGONIUMS.

BY THOMAS TRUSSLER, EDMONTON, N.



FANCY PELARGONIUMS, when well grown, are so remarkably attractive, and so valuable for the decoration of the conservatory during the month of June, that it would be difficult to speak of them beyond their deserts. We have no high-coloured varieties in the section, but the delicately-tinted, gauzy-like flowers present a most pleasing contrast to the high colours of the show varieties which, it need hardly be said, are in perfection at the same time. Of late years there has been too great a leaning towards the zonal and tricolor geraniums, to the injury of old favourites, and the fancy pelargoniums have suffered amongst others. There can be no question as to the value of the zonals for the embellishment of the conservatory, but they ought to be kept back to follow the fancies and show sorts, and not, as is often the case, allowed to usurp their place.

Any one who may feel inclined to grow a stock of the fancies for the conservatory could not commence at a more suitable time than the present, for plants raised from cuttings struck now will bloom superbly next season, and small plants purchased within the next few weeks will make fair-sized specimens by the spring following. Large specimens, trained to present an even surface of bloom, such as the visitors to the metropolitan exhibitions are accustomed to, are not required; indeed, they are quite unsuitable for conservatories, as it is impossible to intermix them with fine foliage and other

plants usually employed in the embellishment of those structures. There are about forty varieties in cultivation, and, strange to say, they all possess considerable merit. For some reason or other it has, of late years, been quite a rare occurrence to see new fancy geraniums brought forward at the public exhibitions; but this season, Mr. C. Turner, of Slough—who, by the way, has raised all the best varieties—has exhibited seven or eight seedlings, and the majority of them were certificated by the two metropolitan societies. Of these it is unnecessary to say anything further, because no one should commence with new and comparatively expensive kinds whilst there are so many good old sorts available. Of the latter, I would recommend, as forming a very select and distinct collection, the following, namely: *Aeme*, a fine dark flower; *Belle of the Season*, French white, with a purple spot on each petal; *Brightness*, bright crimson, light centre and margin; *Ellen Beck*, rose-carmine, shaded with lilac; *Fanny Gair*, rosy lake, white centre and light margin; *Godfrey Turner*, dense crimson; *Lady Dorothy Neville*, bluish-tinted pink; *Mirella*, rosy lilac; *Princess of Teck*, white, with rose-carmine spots, very free and fine; *Roi des Fantaisies*, rose-crimson; *Undine*, rosy lake; *Vivandiere*, rich crimson. In the above selection, all the colours at present found amongst the fancies are represented, and a finer twelve could not be found.

If a stock has to be purchased, now is the time to buy. Strong plants will be furnished with two or three shoots each, and as every shoot will make one or more cuttings, a stock can be obtained at once. The cuttings strike freely in a cold frame, provided the wood has become moderately firm; and to insure this, the plants, whether recently purchased or not, should be placed in the open air for a period of about three weeks or so, and kept rather dry at the roots, before they are pruned. This is necessary, as much for the sake of the plants as the cuttings, as they break so much better when the wood is well matured at the time of pruning.

Each of the shoots will require shortening to within an inch or so of the firm base, and as they will mostly be furnished with two or three laterals, they may, for propagating purposes, be cut up into as many pieces as there are growing points, provided a small portion of firm wood is attached to each. These can be inserted round the edge of five-inch pots filled with fine sandy soil, and having a layer of dry sand on the surface. Place the cutting pots in a cold frame, screen from sun in bright weather, and maintain the soil in a nice moderately moist condition. Some care is necessary in the application of moisture; for if the cuttings are kept too dry, they will shrivel up, and if too moist they will soon decay.

In a comparatively short space of time they will be nicely rooted, and preparations must be made for potting them off. As the fancies do not grow so vigorously as those belonging to the show class, they should be put first of all into small sixties, and as soon as these are nicely filled with roots, shifted into five-inch pots, in which they must be allowed to bloom next year. The pots will require draining thoroughly, as the plants are most impatient of stagnant moisture at the roots during the winter season. A compost moderately open

is also requisite, and in practice nothing will be found to suit them better than mellow turfy loam three parts, leaf-mould one part, and silver sand half a part. Peat is occasionally recommended, but if loam obtained from the surface of a pasture, and full of fibrous matter, is employed, it is not required. During the winter a light airy greenhouse will be the most preferable; but at the same time they must not be exposed to very cold draughts, as they are rather tender, and to subject them to unfavourable influences is by no means desirable. A grand point is to keep them near the glass. Maintain a sweet and dry atmosphere, and supply moderately with water. They must be kept quite safe from frost, and although it is not desirable to employ more fire-heat than is requisite to keep the frost out and the atmosphere sweet and dry, it may be well to say that a temperature of 45° throughout the winter is most conducive to a healthy growth. To state the case briefly, the plants will do exceedingly well if wintered in a light position in the greenhouse, and not exposed to very cold draughts.

The spring management of the plants consists in stopping and training as may appear requisite, and supplying them with water. Severe stopping is not necessary, for in the ordinary way it will suffice to pinch out the points of the shoots just as the plants begin to move early in the spring; and even this will not be required if the plants are moderately bushy. Plants in a healthy condition branch freely just as they are coming into bloom, without any stopping whatever. The only training required will be to put neat stakes to the principal shoot, to insure a certain degree of uniformity in the specimens. Green-fly is the only pest that is likely to attack the plants, but they need occasion no trouble, for fumigating with tobacco will soon make short work of them.

NEW ORNAMENTAL-LEAVED PLANTS.

BY WILLIAM KEMP.



WITHIN the last three or four years, so many ornamental-leaved plants have been introduced into cultivation, that an indication of the most beautiful and distinct will perhaps be useful to many readers of the FLORAL WORLD. The majority of the recent introductions possess merit of a high order, but the additions to some of the genera have been so numerous, that for small collections it is needful to make a selection from them. This is especially the case with the Crotons and Dracænas, for during a very brief period nearly twenty new forms of each have been introduced. Unfortunately, by far the largest number of recent introductions require a stove temperature for their successful cultivation.

Two or three new Alocasias have been introduced, but the best of these are: *Alocasia illustris*, a handsome species in the way of *A. Jenningsi*, but larger and better coloured; and *A. Sedeni*, a fine

hybrid, intermediate in form between *A. metallica* and *A. Lowi*, raised in Messrs. J. Veitch and Son's nursery at Chelsea. *Anthurium crystallinum* is a decided improvement on our old friend, *A. magnificum*; it has the huge shield-shaped leaves characteristic of that noble species, but the principal veins, which stand out well above the surface, are of a silvery whiteness, presenting a most pleasing contrast to the deep velvety surface of the leaf. One *Aphelandra* at least deserves notice; and the one of most importance is *A. fascinator*, a valuable introduction, inasmuch as, in addition to the handsome leafage, it produces splendid spikes of bloom of the most intense vermilion. *Aralia Guilfoylei* and *A. Veitchi* are two useful additions. The former is moderately strong in growth, and has large pinnate leaves margined with white; and the latter is a smaller grower, with digitate leaves, the leaflets very narrow, deep green on the upper surface, purplish underneath. This is one of the most elegant plants in existence, and admirably adapted for dinner-table decoration.

We pass several subjects of minor importance, and come to the Crotons; and from these the following may be selected with advantage: *Croton Johannis*, an elegant form, with long, gracefully-arching narrow leaves, richly variegated with yellow. *C. Youngi* is similar in character to the preceding, the leaves averaging three quarters of an inch in width and two feet in length, and richly variegated and blotched with creamy yellow and rosy red. *C. Wisemanni* is another narrow-leaved form, differing from the first-mentioned in the leaves spreading horizontally instead of being pendulous; the leaves, under good cultivation, are freely marked with rich yellow, and specimens of all sizes are wonderfully effective. *C. undulatum* has upright leaves, about two inches in width by five inches in length, which, when full-grown, are beautifully blotched with yellow and bright crimson. *C. Veitchi* is totally distinct from all others; the leaves are, on an average, twelve inches in length and three inches in width, and in the young state are marked with creamy yellow, which, with age, changes to reddish purple.

The *Dracænas* next claim our attention; and the pick of these are *Dracæna amabilis*, a robust kind, with large leaves variegated with creamy white and rosy pink; very distinct and effective in combination with the dark-leaved forms. *D. Chelsoni* is a robust grower; the leaves large, dark green, freely variegated with crimson. *D. Dennisoni*, a dwarf form, with medium-sized bronzy leaves; well adapted for the dinner-table. *D. imperialis*, a strong-growing form, with white variegation, which, as the leaves acquire age, change to rosy red. *D. Fraseri* differs from the preceding in having broad and rather short leaves, richly variegated with bright rosy lake on a bronzy ground; one of the very finest of the family. *D. pulcherrima*, a very beautiful and distinct form, with rather narrow, gracefully-arching leaves, variegated with red and white; well adapted for the dinner-table. *D. Shepherdii* is remarkable for its broad spreading leaves and majestic habit; one of the best for large houses or competitive groups. These comprise only a very small proportion of the *Dracænas* that are

worthy of a place in the choicest collection of stove plants ; but in the foregoing selection all the various types are represented.

The Marantas may be justly considered of lesser importance than the Crotons and Dracænas, and the additions of late years have not been remarkable for great beauty. Those who are partial to them may add *Maranta hieroglyphica*, *M. Mackayana*, and *M. tubispatha*. These, however, are not equal to *M. rosea picta*, *M. Veitchi*, and other established kinds that could be mentioned.

One of the best of variegated plants is *Pandanus Veitchi*. The leaves are broad, and marked with longitudinal bands of pure white ; it quite surpasses the well-known *P. javanicus variegatus*. *Paullinia thalictrifolia* is really a gem, and may be popularly designated the "Maidenhair Tree," for the leaves are similar to the beautiful *Adiantum cuneatum*. Indeed, neat bushy plants of the *Paullinia* can hardly be distinguished from that beautiful fern at a distance. It is exceedingly well adapted for the decoration of the dinner-table, and the leaves, as they retain their freshness for a considerable period, are most useful for bouquets and vases.

It would be easy to extend this list ; but I have been careful to include those only which I know from personal observation to be thoroughly distinct from older kinds, and are in every way decided acquisitions.

CUT FLOWERS FOR DINNER-TABLE DECORATIONS.

BY A WORKING GARDENER.



IN the following remarks I intend to deal with decorations of cut flowers for the dinner-table, and not of plants for the same purpose. I shall therefore confine my remarks to the dressing up of those articles now so much in use for the more effective display of cut flowers by gaslight.

In the first place, the *épergnes* or stands which have come into use for this purpose are too stiff and formal, taking them as a whole ; and I cannot understand why the original form of Marsh's stands should be so nearly copied by every exhibitor of these articles, for surely they are open to improvement. That they must be somewhat similar I do not deny, and no doubt the objects which usually surround them when on a dinner-table render it necessary that they should be to a certain extent formal. But that is no reason why a design originating in the mind of one individual should not be departed from and rendered more acceptable, as we gain more knowledge of the requirements of a new fashion. At all events, my impression is that it should be so ; and I am sorry to say that I do not think we have made that advance in the form and making up of dinner-table decorations that the subject merits. Leaving the question of the shape and form of these articles to be discussed by those whom it more intimately concerns, let me proceed at once

to the part which more directly bears upon the gardener's view, viz., the putting up of the flowers.

In the first place, then, let me say, that although I shall be candid, I hope the fair readers of the *FLORAL WORLD* will not think me harsh or unkind when I say that a change in the arrangement of flowers for this purpose is needed in many instances. I do not say but what there are very many ladies who can make up a display in the most tasteful manner, but the generality of them seem to forget at the moment of doing so the position that they will occupy; that is to say, they forget that those forms and colours which are pleasing and beautiful by daylight are not seen to the same advantage even in the most brilliantly lighted room by gaslight. This is, of course, an important consideration, for what may appear to be the most effective arrangement by daylight will in all probability be the least satisfactory with an artificial light. Take any light yellow colour for an instance, and under a strong light at arm's-length it presents a dull kind of white; and that is the case with most half-tints or shades of colour. While I am on the subject of colour, let me say that I feel confident that if green glass were used for the formation of the stands, of whatever form, the more effective would be the flowers placed in them. The old-fashioned silver *épergnes* and Marsh's glass stands are in themselves too brilliant, and they detract from the beauty of the colours. What flowers require in such a position is a quiet, unpretending ground-work to show them up, as with the best possible taste in arrangement of colours they can never be so effective by gaslight; therefore, anything which tends to detract from their beauty should be avoided. For this reason I say daylight exhibitions of these articles are not to be depended upon for final decisions, because very frequently the same productions would be valueless if shown under artificial light.

But taking the dinner-table decorations as we find them at horticultural exhibitions, I am bound to say we often see objects of superior merit in a decorative point of view, while others are destitute of any claim to respect. But if we are to make no advance in the improvement of these useful decorations as regards form, I may be allowed to say that some exhibitors of these articles have plenty of room for improvement in the arrangement of the colours, even whether they are to be shown by daylight or gaslight. The improvement we require generally is enhancement of elegance with less colour. Solid masses of colour are neither pleasing to the eye nor adapted to the occasion, to say nothing of their possible vulgarity. With a due regard to the choice of colours, and a judicious arrangement of them in such a form as to present a somewhat broken surface mingled with sprigs of green, the most ordinary flowers will be attractive; but flowers bunched up as if they were to be sent to market and dropped into their respective receptacles, give but a very poor idea of their beauty; whereas if the same were used with taste, and some attempt made at gracefulness in the arrangement, they would make a pleasing feature.

In making up these subjects, it should be remembered that green has a softening and harmonizing tendency, so that if any

particular colour is in favour, it may be used moderately if there is a corresponding amount of green used with it. Of course, when they are to be inspected by daylight a greater number of colours may be used, and many of the beautiful-leaved plants will be seen to advantage; but except the most showy caladiums, these should be avoided by gaslight, and the principal aim should be to make the whole arrangement wear as light and graceful an appearance as possible. This is easily effected by the free use of the lycopodiums, and some of the more pendulous fronds of ferns; and by all means avoid the crowding of the flowers, for I have sometimes seen these articles so crowded, that the beauty of more than half of the flowers was lost, besides making the whole thing look clumsy.

As a last word, let me say, avoid that stiff, formal character in the arrangement of your flowers which is now so general; use freely, but with judgment, sprigs of myrtle, fern, or some other small green-leaved plant, so as to break up the surface into distinctive features and colours; and if they are to be used by gaslight, bring most of the principal colours you intend to use before the candle the night before, so that you may be able to judge how they will look when finally arranged.

NEWLY-PURCHASED PLANTS.



WHY do plants die soon after people get them? Obviously, in the majority of cases, because when they get them they know not how to treat them. Every case has its own features, and therefore to generalize is not easy. But one generalization may be hazarded, and that is, that plants ordered from nurseries usually have to endure a colder atmosphere than they have been used to. At the nurseries they cut plants so hard, and push them on so fast in stove-heat, that some preparation is needed to adapt them to the new circumstances in which they are to be placed. Suppose a nice little lot of ferns, semi-stove plants, such as caladiums, begonias, cannas, etc., just unpacked from a hamper; they are taken at once to the greenhouse, and next day they droop a little. Of course they get a dose of water, and that makes them droop more. Perhaps they get a little more water, and that—*kills them!* How is it? The fact is, they came from a warm, moist, close atmosphere; they are now in a cold atmosphere, and have more sun than they can bear. The first drooping is a sign of distress, and water adds to that distress by giving them an extra chill; and it is a violation of a golden precept, "Plants should never have more water than they can appropriate." When new plants arrive, unpack them at once, and put them in some odd place about the house, such as a dark corner of a spare room, in a warm frame with a mat over the lights, or under the stage of a warm greenhouse. There leave them till they really want water, then give them a little, and after two or three days take them from the hybernatory in the afternoon, and put them on

the stage, or take off the mat, or otherwise let them enjoy full daylight. Three days will generally suffice; but if they have had a long journey, and the weather is cold, give them a week of quiet to recover. The first two days of enjoying full daylight, shade them from the sun during midday hours, and on no account ever repot plants immediately after receiving them, unless you *know* that they have been long established in the pots, and have been hardened by exposure to the open air. It is a good rule to have duplicates of all choice plants—never to trust to one of each. Very few people would have the courage to pick off the bloom-buds from a lot of new pansies or pelargoniums at five shillings each; they would let the first blooms open while the plants were weak, and then say they had paid their money for rubbish. When the plants have gained their proper strength, the blooms will have their proper character, and no plant can produce blooms true to its reputation until it has stored up, by free leaf-growth, a certain amount of pulp, and acquired thereby a sturdiness of character.

S. H.

CULTIVATION OF RHUBARB.



THIS important vegetable is one of the many good things that ordinarily take such good care of themselves that it really obtains, in many gardens, less attention than it requires and deserves. In many instances, of course, it is a mere weed of the garden, that may prosper or perish for all the owner cares; for some good folks care but little for it in any shape or at any time, while not far off, perhaps, we may find those who esteem it highly, and would be glad to secure the best sorts and grow them in the best way to secure a full enjoyment of the various uses to which the plant may be put. Our own collection of rhubarbs comprises twenty sorts, and they differ considerably in relative value, and especially in the one important point of early growth; for those that grow earliest are the most to be desired, and as a rule they are the smallest, most highly coloured, and most delicately flavoured, and are of great service in the household in the early spring days, when the store of preserves is running low, and the largest of gooseberries are still too small to make insipid tarts. But the later and more robust growing varieties have their uses, for, to begin with, some people use rhubarb as a substitute for fruit in tarts all the summer long, while for preserving and wine making, the late kinds are much to be preferred, for they afford large supplies, while the early and very delicately flavoured kinds do not.

RAISING FROM SEED is a very simple business, but it will never pay the amateur unless he has some special object in view, such as the improvement of the varieties in flavour, earliness, productiveness, or some other desirable quality. In the month of July the seed may be obtained in plenty where the plants have been allowed to flower, and it should be gathered as early as possible, to insure ripeness,

for if it is scattered about amongst the plants many seedlings will come up and injure the plantation. Cut off the whole of the seed-bearing stems close down to the heart of the plant, and lay them on cloths in a sunny greenhouse or wherever else they may be ripened in the full sun without risk of being blown away by the wind. As soon as it falls freely from the stalks it must be sown in drills two feet apart and an inch and a half deep. The ground must be kept clear of weeds, and in spring the rhubarb plants will appear in plenty, varying greatly in size and shape of leaf.

If you have practised cross breeding with a view to obtain plants of a particular style and quality, it will be well to let the whole remain until they become crowded in the rows, and then carefully transplant them in showery weather into rows three feet apart, putting the plants two feet apart in the row. The soil should be rich, deep, and moist, but not cold, and a sheltered spot should be selected to give the most precious of the seedlings a fair chance for an early start in spring.

If the object of seed sowing is simply to obtain stock for market, or to fill a plantation, thin the seed bed to six inches asunder, taking care to remove the weakest plants, and especially those that appear to differ from the type required. In the spring look over the plantation two or three times, and carefully lift every plant that pushes early and promises to be suitable for forcing. Plant these on rich, deep soil, with plenty of manure, putting them at least two feet apart in rows a yard asunder. Let them grow for a year, and then force them. Those that remain should be carefully rogued to remove unpromising plants and give more room to the best.

A PERMANENT PLANTATION OF NAMED SORTS will be more useful in a small garden than seedlings, because a few plants of the very finest quality can be secured for a trifle, and may be multiplied to any extent required by the simple process of cutting up the roots. The soil best adapted for rhubarb culture is a deep, rich, moist loam, but the plant will thrive more or less, and at least usefully, on almost any kind of soil, but good living and plenty of moisture it will always appreciate. Our collection of twenty sorts forms a row of about a hundred feet in length, on a border of deep, damp loam, the stools being four and a half feet apart, and a trifle too close even at that, for the growth is tremendous. The border is well sheltered, and we secure usually a very early growth, so that really we do not need to force rhubarb. As soon as the leaves die down in the autumn we take cuttings of such as we require stock of. This is accomplished easily by cutting down by the side of the stools with the spade, and then carefully slicing off pieces of the root with incipient crowns. If the variety operated on is one of the scarce and valuable kinds, we pot the pieces and put them in a cold pit and plant them out when growing freely in spring. If they are sorts easily obtained, and too cheap to justify the trouble of potting, we plant them at once where they are to remain, for it is of very great importance to have rhubarb plants established as quickly as possible, and in all ordinary cases autumn planting is always to be preferred. Any amount of manure may be used in preparing the ground for

rhubarb, and yet in a deep, damp, strong soil, it is scarcely necessary to use manure at all; certainly, on our oak and wheat growing clay we can do wonders with rhubarb without help of manure.

FORCING.—The simplest and, generally speaking, most useful mode of forcing is to proceed as follows:—When a frost has occurred in October (and not before), clean up the plantation, and put a barrowful of half-rotten stable or styer manure over every plant, taking care not to cover the crown more than three inches at the very utmost. On this point mistakes are often made, and the tender early stalks are unable to push through the hard cake of stuff above them at the time when they are most wanted and valued. The two or three inches of manure should be spread around the stool to insure some benefit to the roots of the plant, for, as a matter of fact, the crown does not want it; for the crown, indeed, we have next to provide. At the turn of the year, put on the crown of every plant that should give an early supply about a barrow-load of light dry litter. If you employ half-rotten manure, it may answer perfectly, but the comparatively weak and very early growing varieties cannot always push through stuff that has dried in flinty flakes, and it will be found in practice that our plan of operations is preferable to that commonly in use, because it insures a plentiful supply of early sticks that can be easily drawn, whereas stable manure put on after the turn of the year will prevent many of the sticks rising, and really should be used only for the assistance of the more robust and later varieties. Very well, remembering that complete success depends oftentimes on the observance of trifles, the next business is to find a lot of old boxes, drain pipes, any kind of cover that can be put over the other to keep in the warmth and exclude the cold.

At the risk of appearing prolix, we shall invite attention to a few facts of a representative kind. On the 11th of January, 1861, the temperature of the earth at a depth of two feet at Chiswick was $36\frac{1}{2}^{\circ}$, and the minimum temperature of the air the same day was 19° . On the 11th of January, 1862, the temperature of the earth at a depth of two feet was 43° , and the minimum temperature of the air on the same day was 30° . On the 11th of January, 1863, the temperature of the earth at a depth of two feet was $43\frac{1}{2}^{\circ}$, and the minimum temperature of the air on the same day was 23° . On the 11th of January, 1864, the temperature of the earth at a depth of two feet was $40\frac{1}{2}^{\circ}$, and the minimum temperature of the air on the same day was 29° . On the 11th of January, 1865, the temperature of the earth at a depth of two feet was 44° , and the minimum temperature of the air on the same day was 40° . On the 11th of January, 1866, the temperature of the earth at a depth of two feet was 43° , and the minimum temperature of the air on the same day was 17° . On the 11th of January, 1867, the temperature of the earth at a depth of two feet was 42° , and the minimum temperature of the air on the same day was 16° . On the 11th of January, 1868, the temperature of the earth at a depth of two feet was $39\frac{1}{2}$, and the minimum temperature of the air on the same day was 29° . If we go on for ever the same kind of story will be told, and the facts cited will suffice to indicate that when early growth of outdoor plants is desired,

we must shut them up from the variable atmosphere, and conserve for their use as much as possible the natural heat of the earth. In the course of the eight years to which the foregoing particulars refer, the mean difference between the temperature of the earth at two feet depth and the minimum of the air above the same spot on the 11th of January was 16° , the mean of the ground heat being $41\frac{1}{2}^{\circ}$, and the mean of the minimum of air heat $25\frac{1}{2}^{\circ}$. The value of any kind of cover that prevents escape of earth heat without oppressing the plants must, on the face of the facts, be obvious.

It pays well to force rhubarb in sheds and outhouses where the demand is considerable, and there are plants at command for the purpose. The roughest machinery and materials will suffice, and the roots may be packed in any rough stuff that will hold moisture, and as for temperature, it should never rise higher than 60° if supplies are wanted quickly, and a better sample may be grown at an average of ten degrees less. If grown in the dark it will be more delicately flavoured than if exposed to light, while the colour will be scarcely less bright. In systematic forcing for the market, it is a good plan to plant in a well-made bed a lot of the best early sorts, putting the plants a yard apart, and cover with chimney-pots or large drain pipes, and surround these with hot dung, with a slate or some other rough cover on the top. Rough cradles made in the fashion of crates may be employed for the same purpose, and having been turned over to cover the stools, must be buried in hot dung, with rather loose and light litter on the top. The plant is so manageable and so profitable that whoever desires a supply of delicate rhubarb from Christmas to May will, after having read this chapter, find it quite easy to devise the means for the realization of the wish.

The rhubarb supplied to the London markets is in great part forced in tan. The first lot of roots are lifted in October, and are exposed to the weather for about ten days, and they are then packed in tan in a brick pit and very slowly forced. In the course of December they yield a nice supply of most elegant shoots. The second lot is lifted a fortnight after the first, and is also exposed to the weather for a short time, and is then packed in tan to give a succession. When the supplies from these roots are exhausted, the covered stools in the open ground will begin to be productive, and there will be no need for lifting any more roots. It is not necessary to destroy the roots that have been forced, but they must have one year's culture in rich soil to restore their vigour.

Finally, to maintain the health and strength of the plant, be careful not to remove the stalks extravagantly, for if you pull, pull, pull, with immoderate eagerness, the plant will be seriously injured, and will be very likely to die outright. A short anecdote will illustrate this point. An amateur who had a fine plantation of rhubarb gave permission to a friend to take as much as he liked while the owner was away for a summer jaunt. The friend was suddenly fired with an ambition to make some wonderful rhubarb wine, and for several weeks in the height of the season, he pulled every stalk he could get, so that when the growing season was over, the stools

were stripped bare. The next spring showed the result of the greedy procedure, for two-thirds of the stools had died, and the remainder quite failed in respect of giving an early supply, but recovered by being left untouched the whole season.

SELECTION OF VARIETIES.—The sorts best adapted for early supplies in a small garden are Maclean's *Red Currant*, *Johnston's St. Martin's*, and *Royal Albert*; for summer supply, *Victoria* and *Baldry's Defiance*. The noblest of the rhubarbs for ornamental purposes is *Stott's Monarch*, which is so grand in its proportions as to be fit for a place on the lawn. It has the flavour of an apple.

S. H.

CLERODENDRON BALFOURI.

BY J. F. MC'ELROY,

Head Gardener at Moray Lodge, Campden Hill.



FEW years since, when the late Mr. Cole, of Manchester, formerly gardener to Mrs. Lawrence, of Ealing Park, used to contend so eagerly for the foremost position at our principal horticultural exhibitions, with collections of gigantic but skilfully-grown stove and greenhouse plants, noble specimens of *Clerodendron fallax* and *C. Kœmpferi* commonly formed conspicuous objects not only in these but in other cultivator's collections; their many rosy and scarlet flowers and fine foliage produced a very splendid but dazzling effect, as viewed by the spectator. In addition to these was a white variety, which I have cultivated and exhibited with some degree of success, viz., *C. fragans pleno*. Its flowers diffuse a very delicious scent, and it is in every respect a desirable subject. They are not difficult to manage where plunging materials that afford a brisk bottom-heat are obtainable, and with this there must be plenty of space, if it is desirable that large specimens should be obtained.

Of the climbing forms of this genus, many excellent species and varieties have been introduced of late, and *C. Balfouri* is certainly one of the best. The first time I saw it was a specimen nicely flowered and exhibited by Mr. R. Parker, of the Exotic Nursery, Tooting. I was very much delighted at the beauty of the flowers at that period, not supposing then, as I have afterwards experienced, that it is one of the easiest to grow and flower. Since then I have witnessed at our horticultural exhibitions specimens well grown and superbly flowered of this species. Its striking colour, a bright red centre with white ground, is sure to attract the attention of the passer-by, and secure the lasting admiration of the connoisseur. The majority of the plants exhibited have been trained round balloon-shaped trellises. As regards appearance, this is a more perfect style than a flat surface, the object being to adapt it to the system of training which is at present most in favour with exhibitors.

A word as to its cultivation. We will presume that you have now a young plant; if so, grow it on as fast as you can for some months to come, training the shoots as they grow. In the autumn, when you consider that it has completed its season of growth, gradually lessen the supply of water, and have an eye to the thorough ripening of the shoots of the season. I would say, treat it somewhat as you would a vine when you are anxious to obtain a crop of fruit the following season. Exactly so with the pruning of it; the side or lateral shoots can be shortened to one or two eyes, according to their respective strength. The blooming season can be retarded or otherwise, by subjecting it to a higher or lower temperature, not forgetting that its proper element is the stove. At the present time I have a plant treated as recommended above; its shoots are trained over a flat surface about a yard in height, and the same in width, and I may say three-fourths of it is covered with its beautiful clusters of flowers. Its effect is truly glorious; but the continuous succession and lengthened duration of the flowers, not forgetting its beauty, make it one of the most valuable additions to the list of flowering plants for the stove. It likes plenty of pot-room, and a soil consisting principally of peat and silver sand.

THE CULTIVATION OF ENDIVE.

BY W. GARDINER.



It is difficult to prepare a first class salad during the winter and spring season without nicely blanched endive, and as it is not usually grown so well as it should be, I have thought it desirable to offer a few remarks on its cultivation. For summer and early autumn supplies, sowings must be made at intervals during May, June, and July, but for the main winter crops a sowing must be made in the first week in August. As regards sowing the seed, it must be said that the best results are insured by sowing thinly in tolerably rich soil; it is simply necessary to mark out a bed where the soil is tolerably rich, make the surface smooth with the rake, and then sow the seed thinly. This enables the plants to remain in the seed-bed long enough for them to become strong before they are transplanted. When the seed is sown thick the plants must of necessity be either thinned out, and transplanted when they are young and tender and ill able to bear the removal. If they remain crowded in the seed-bed they run up and soon become worthless. The bed will require watering, if we have a continuance of dry weather, to assist the seed to germinate quickly, and thus avoid any waste of time.

A deep holding loam is, without doubt, the best for growing first-rate endive, and it is next to impossible to have it too rich with manure. I should prefer ground from which an early crop of potatoes had been taken, and which was deeply stirred and liberally manured

in the spring before they were planted. In dealing with ground of this description, at this moment, I should cover it with at least six inches of good fat manure, and dig it in rather deeply, incorporating the soil and manure well together. This is the best way to secure large crisp hearts which alone are fit for the salad bowl. When the plants are strong enough for transplanting, and the quarter or border ready for their reception, commence by drawing out drills about four inches deep, run the foot along them to make the bottom of the trench firm, and then pour a few cans of water in each, unless the weather is showery, and then the water will not be necessary until after the planting is finished, to settle the soil about the roots. The curled kinds should be planted about a foot apart each way, and the broad-leaved Batavians will require fifteen inches, if the soil is in good heart. To grow them to a fair size, a little assistance in the shape of a few good waterings will be beneficial until they are nicely established. The next point to be thought about is the blanching; and so far as I have been able to try the various methods which have been recommended from time to time, I cannot find anything better than tying them up with a piece of matting. As they are planted deeply, the soil can be filled in round them, and a little soil also drawn up round the strong-growing Batavians. When this is done, it is not so necessary to tie them so early. They grow close together and have tolerable hearts, and a piece of matting round the top finishes the blanching. If the earthing-up is not adopted, many of the leaves will, in tying them up, be snapped entirely off, or bruised so much as to be of very little service afterwards. All that are blanched a little must have protection of some kind from sharp frosts, or the tips of the leaves will rot, and spoil one half of the endive. I generally take them up directly there is any danger from frost, and place them close together in some of the fruit houses that are thrown open, or in a cold frame, if I have room to spare. I have before now made a temporary frame with a few boards, and covered it with old doors or mats, and have found it to answer very well. Those which are tied up about the beginning of November, will not take much harm if they have a flower-pot turned over them of an evening when there is any likelihood of a frost. Several hundred can be covered or uncovered in a very few minutes. These, as a matter of course, will also require taking up to be put under cover directly they have a nice heart, as the blanched portions are injured sooner than the green leaves. This batch will last nicely through January and February.

For late spring use, a sowing should be made towards the end of August, on a bank two or three feet high, facing south. Plants pricked out, and the plants put out on a border of this description, will turn in well in the spring, though rather small. The market gardeners plant their endive for the spring along the banks of the hedges which form the boundary to their fields. Damp is such a great enemy to this vegetable that, unless planted on sloping banks of this description, the greater part of them would be destroyed through the winter unless protected in frames, and then the transplanting would most probably cause them to run before fit for using.

As regards the selection of sorts, the *Broad-leaved* and *Round-leaved Batavian* are first-rate for cutting from October to March, and when grown well scarcely distinguishable in the salad-bowl from a lettuce. Some stocks of this have narrower leaves than the others, and have a strong and bitter flavour. The *Green Curled* is best for sowing for the winter where the Batavians are considered coarse, and should be sown for planting on the banks for spring use. For the autumn the *White Curled* is most valuable, as it is of quick growth, and blanches readily and is very delicate, but the damp and frost soon affect it. Where a constant supply has to be kept up, nothing can equal the Batavian varieties, for they can always be depended upon.

ORCHIDS FOR AMATEURS.

BY GEORGE GORDON.



NOW that the cultivation of orchidaceous plants is extending in the gardens of amateurs at a very rapid rate, it has occurred to me that a list of the most suitable kinds for forming a thoroughly representative collection would be useful to many readers of the *FLORAL WORLD*. I have accordingly prepared a list of the most beautiful and attractive species, and have made such comments on each as are likely to add to the value of the list. As the utmost care has been taken to enumerate those only which are remarkable for their beauty and distinctness, the list should, in purchasing, be followed as closely as possible. Some of the species in the more important genera are very similar, and not required in the same collection, excepting when very large, like that of Mr. Day's, at Tottenham. Again, some of the varieties of particular species are much better than others, and in buying without a practical knowledge of them, the risk is incurred of purchasing inferior varieties. It should also be understood that the price which orchids command is regulated more by their variety than by the beauty of the flowers, so that the prices in the trade catalogues do not always afford an index of the value of the respective species and varieties as decorative plants.

It will be needful to state, in the first place, that to grow all that will be enumerated, three houses, or one house divided into three compartments, must be provided. For a small collection, one house divided, as here advised, will be the most preferable. It will admit of the plants being inspected and attended to more readily than would be the case were they in detached structures, and it will also admit of the heating arrangements being carried out in a more economical manner. Having divided the house, we will designate the first division, which should be nearest the boiler, the stove, in which the temperature should be kept during the winter season at 65° by fire-heat, allowing a rise of 5° by sun-heat, and from 75° to 85° during the summer, the lowest number to represent the commencement and end of that period, and the highest the middle.

August.

The second we will name the intermediate house, the temperature to be 55° in the winter, and from 70° to 80° through the summer. The last we will term the cool house, and in this the temperature must be from 45° to 50° through the winter, and from 60° to 65° in the summer.

The whole of the species require a plentiful supply of water at the roots when they are growing, combined with a moist atmosphere. But in the winter, when they are at rest, the atmosphere must be much drier, and they should only have enough to keep them in health. Those with large fleshy bulbs will only require sufficient to keep them from shrivelling, but those with no bulbs, the *Aerides* and *Vandas*, for example, will require rather more moisture, even when at rest. The epiphytes will mostly thrive in fibrous peat or sphagnum moss, in pots or baskets. A few grow best on blocks suspended from the roof, and the terrestrial kinds grow well in fibrous loam, chopped up roughly, and mixed with about one-fourth its proportion of horse-droppings. They must have as much light and air admitted to them as is consistent with their safety. The latter must be carefully managed to prevent the plants receiving a check from its blowing directly upon them, more especially when the sun is rather bright and the air keen—such weather as we have in March, for instance. Ventilators should be fixed in the side walls opposite the hot-water pipes, and then the air becomes warmed before it reaches the plants; and others in the roof, to allow the escape of the heated air. Air-giving must be regulated by the state of the weather; double the amount being admitted when the air is warm and soft than when it is cold and keen. During the winter months sufficient air will find its way through the laps of the glass without opening the ventilators. The plants require full exposure to the light at all times, excepting in bright sunny weather, from March to September, and then they must be protected from sunshine by means of tiffany tacked over the roof of the house, or by movable blinds of the same. When the plants are in flower through the warmer months of the year, they should be removed to a lower temperature, and where the atmosphere is much drier than that in which they were growing, to preserve the flowers in full beauty as long as possible. In the winter it is not safe to remove them from the orchid-house when they are in bloom, neither is it of any consequence; for, as a matter of course, at that period the temperature is lower, and the atmosphere drier, than it is through the summer. Atmospheric moisture must be maintained by throwing water on the floors.

AERIDES require stove treatment, and should be potted in sphagnum moss, mixed with plenty of crocks broken rather small, and a few lumps of charcoal, with plenty of moisture when growing, and never quite dry. The best are—*A. Feildingi*, *A. Larpentæ*, *A. Lobbi*, and *A. odoratum majus*, all of which have blush and rose-coloured flowers.

ANGULOA.—*A. Ruckeri* and *A. Clowesi* are the two best. They have large bulbs, with flag-shaped foliage and yellow flowers. They should be grown in a cool house, potted in peat.

BRASSIAS.—*B. verrucosa major* is easy to grow, and a free bloomer. The flowers are greenish white, and produced on long spikes in April, May, and June. It will grow well in peat, and in an intermediate house.

BURLINGTONIAS succeed admirably in baskets filled with sphagnum, or upon blocks with a little moss secured to them for the roots to run in, and suspended from the roof. They have a pretty appearance. *B. fragrans* is one of the best; the flowers are white, with faint shade of rose, and deliciously fragrant.

CALANTHES grow well in the intermediate house when potted in the soil recommended for the terrestrials. I shall name three, and they are *C. veratrifolia*, *C. Veitchi*, and *C. vestita*.

CATTLEYAS.—In this genus are some of the most beautiful orchids in cultivation. They thrive in an intermediate house, with the exception of one or two that will do well enough in the cool house, and should be grown in peat, with plenty of drainage. First we have *C. citrina*, which should be grown on a block with the leaves downward; the flowers are bright yellow. *C. crispa* should be in every collection; the flowers are white, with crimson lip. *C. Dowiana* is one of the grandest Cattleyas we have; the flowers are large, buff or nankeen coloured, with fine large dark purple lip, striped with bright orange. *C. labiata* flowers late in autumn; sepals and petals bright rose, with crimson lip. *C. Mossie* is especially useful, for it blooms abundantly, and the flowers are wonderfully attractive. *C. Trianiæ* is first-rate for winter flowering, and the varieties vary much in colour. *C. Skinneri* is a fine, strong-growing and free-flowering species, with deep rosy purple flowers.

CÆLOGYNE.—*C. cristata* is, without doubt, one of the very best winter flowering orchids we have. It is dwarf-growing, with dark green foliage, and drooping racemes of the loveliest flowers imaginable. They are pure white, with rich golden yellow blotch on lip. I have grown plants of it nearly a yard across, loaded with flowers. It does best in sphagnum and peat, with plenty of drainage, and an abundance of water when growing, and the bulbs not allowed to shrivel when at rest. It should be placed in the warm end of the intermediate house when making its growth, and afterwards it will do very well in the cool house.

CYPRIPEDIUMS.—The species which will be enumerated will succeed most satisfactorily in the stove, although they may be grown in the intermediate house. They may be grown in either peat or moss, separately or mixed together in equal quantities. *C. barbatum superbum* is one of the best varieties of *barbatum*, with beautifully-marked foliage and dark bronzy purple flowers. *C. caudatum*, one of the most singular orchidaceous plants in cultivation; the sepals and petals are yellow marked with brown; bright brown lip. The tail-like petals attain a length of from eighteen inches to two feet, producing a novel effect. *C. insigne* is a good old kind, when grown well, blooming freely through the winter. *C. villosum* is one of the best, with handsome foliage and beautifully-shaped flowers, remaining in good condition from six weeks to a couple of months. The flowers are brownish orange, mixed with purple and green.

DENDROBIUMS.—These succeed admirably in thoroughly fibrous peat, or in sphagnum moss, with plenty of moisture when growing freely, and a good season of rest. They should be grown in the stove, with plenty of atmospheric moisture when they are making their new growth, and then removed to a cooler house, and exposed to plenty of light, to thoroughly mature it before winter. They require very little water when at rest; and after the season's growth is finished, the upright-growing kinds should be tied out with neat-looking sticks. I shall make a liberal selection from this genus, for it can be done without including any inferior kinds. *D. chrysanthemum*, a pendulous grower, suitable for baskets; flowers bright yellow, with maroon spot on lip; *D. chrysotoeum*, a dwarf upright grower, produces its beautiful spikes of yellow flowers about February. *D. Dalhousianum* is a grand species when done well; flowers large, very light yellow, marked with maroon-crimson spots. *D. densiflorum*, beautiful habit and free-flowering, producing fine spikes, rich golden yellow flowers, in April and May. *D. Devonianum* is a pendulous-habited plant, good for baskets; flowers freely in May. *D. Farmeri*, another compact-growing plant, in the way of *densiflorum*; sepals and petals pink, with yellow lip and fine large spikes. *D. formosum giganteum*, flowers large, sepals and petals white, with rich yellow blotch on the lip. *D. macrophyllum*, a fine pendulous grower, with large rosy pink flowers. *D. moniliforme* grows and flowers in very much the same way as *nobile*, but the flowers are not so well shaped; valuable for winter-flowering. *D. nobile*, though common, is decidedly one of the best. It may be had in bloom from February to June with a little management. It blooms on the old bulbs, and the colour of the flowers is light rose, with a dark crimson blotch on the lip. *D. Paxtoni* is a handsome-growing kind, which produces its fine spikes of golden yellow flowers in May. *D. speciosum* is strong, yet dwarf-growing, with large spikes of greenish white flowers; should be grown entirely in the cool house.

EPIDENDRUMS.—These grow best potted in peat, and grown in the intermediate house. They are propagated by division, and impatient of too much moisture at the roots at all times. *E. aurantiacum roseum*, *E. macrochilum album*, and *E. vitellinum majus* are the three best; the latter should be grown in the cool house.

IONOPSIS.—*I. paniculatis* is a pretty little free-flowering orchid, with blush-coloured flowers; requires a block with a little moss fastened to it, and should be grown in a cool house.

LELIA.—Some species do well treated in the same manner as the Cattleyas, whilst a few others are best grown on blocks. *L. albida*, *L. acuminata*, and *L. unceps* are three dwarf-growing kinds amongst the latter; all bloom in the winter, and do well in a cool house. The other three that I shall select partake more of the habit of the Cattleyas, and are amongst the most beautiful species of the whole family, and invaluable for exhibition purposes; they are, *L. elegans*, *L. majalis*, and *L. purpurata*. They are all perfectly distinct, but resemble each other in colour, which is various shades of rose, with purple lip.

LIMATODES ROSEA, invaluable for flowering in winter.

LYCASTE.—Some of the species in this genus are deliciously-fragrant, *L. cruenta* being one of them; the flowers are yellow, with dark blotch on lip, and produced in March. The most valuable for the beauty of the flowers is *L. Skinneri*, which flowers in March and April, with pure white flowers and rosy crimson lip. These are best grown in an intermediate house, and removed to a cool house during the time they are in bloom. They should be potted in peat, with plenty of water when growing, and be rather dry when at rest.

ODONTOGLOSSUM.—Too much cannot be said in favour of the charming species which comprise this genus, for they are very beautiful, and only require sufficient artificial heat to keep the frost out, and the temperature comfortable through the winter. *O. Alexandræ*, colour pure white, lip spotted with yellow; *O. citrosimum*, white, produced in June; *O. gloriosum*, vigorous habit, flowers yellow, spotted and barred with green and brown; *O. grande*, one of the best flowers, yellow and brown; *O. hastilabium*, a strong grower, producing immense spikes of greenish white flowers, barred with purple. *O. hystrix*, *O. Insleyi*, *O. læve*, *O. luteo-purpureum*, *O. pulchellum*, *O. Pescatorei*.

ONCIDIUMS will thrive best in an intermediate house, when growing, with plenty of water, and afterwards removed to a cool house when at rest and rather dry. They all grow well potted in peat. The colours of the following vary from pale yellow to dark brown, and all are good: *O. ampliatum majus*, *O. altissimum*, *O. crispum*, *O. flexuosum*, *O. leucochilum*, *O. papilio* (best grown on a block), and *O. sarcodes*.

PHALENOPSIS.—All the species must be grown in the stove, with plenty of water when growing, and kept quiet during the winter, but not dust-dry. *P. amabilis* and *P. grandiflora* have white flowers, and *P. Lowi* and *P. Schilleriana* have rose coloured flowers, and all flower in the spring.

SACCOLABIUMS.—These should have stove treatment, and be potted in moss with plenty of drainage, and liberally supplied with water when growing, and the moss kept just damp through the winter. *S. ampulaceum*, has short spikes of deep rose-coloured flowers; *S. curvifolium*, small spikes of orange-scarlet; *S. Blumei* and *S. retusum*, immense spikes of beautifully-delicate rose-coloured flowers.

SOPHRONITES.—*S. grandiflora* is a charming little plant for growing upon blocks in a cool house, its beautiful scarlet flowers presenting an agreeable change through November and December.

STANHOPEAS.—*S. Bucephalus*, blooming in August, with large yellow flowers spotted with crimson, and *S. tigrina*, flowering in July, with yellow and chocolate flowers, are both good. These must be grown in baskets, as the flower-spikes strike downwards, and come through the bottom of the baskets; they do well in a cool house.

TRICHOPILIA.—*T. coccinea*, reddish crimson flowers, produced in May, and *T. suavis*, white flowers spotted with rosy pink, produced in April, are both good. They both do well in the intermediate

house, while making the new growth, and afterwards the cool house is the best place for them.

VANDAS.—*V. cærulea*, with its fine spikes of lilac flowers, produced in October; *V. suavis*, creamy white flowers, spotted with crimson, and *V. tricolor*, are all good. These are best grown in sphagnum, with plenty of small crocks mixed with it; plenty of water when growing, a moderate supply when at rest, and kept in the stove, excepting *V. cærulea*, which does best in an intermediate house.

THE GARDEN GUIDE FOR AUGUST.

"The sixth was August, being rich array'd
In garment all of gold downe to the ground:
Yet rode he not, but led a lovely mayd
Forth by the lilly hands, the which was cround
With eares of corne, and full her hand was found:
That was the righteous Virgin, which of old
Liv'd here on earth, and plenty made abound;
But, after Wrong was lov'd and Iustice solde,
She left th' unrighteous world, and was to heaven extold."

SPENSER.



THE more showy and attractive of the flowers usually at their best during the month are the Alstræmerias, the Alpine Thrift, Starworts, Campanulas, Mule Pinks, Lilies, Lychnis, Pentstemons, Phloxes and Statice. The garden work of August comprises the propagation of bedders for next year's display, the shortening of the young shoots of the pyramidal and other fruit-trees, making new strawberry beds, the painting and cleaning of plant structures, and the housing of New Holland and other specimen plants.

FLOWER GARDEN.—It is essential that Dahlias, Gladioli, and Hollyhocks should be staked without delay. Remove the flower-spikes from all perennials immediately the beauty of the flowers is past, if the seed is not required. This is a capital time for sowing seed of these things, as there is plenty of time to obtain strong plants by the end of autumn, if the seed is sown early this month. Propagate the stock of bedding-plants at once, excepting the Calceolarias, which are best left until the end of September. All the bedding Geraniums strike better on a warm, sunny border than in pots and frames. Prick up the border, and, after making it firm on the surface, insert the cuttings, and, in ordinary seasons, all the attention necessary until they are rooted will be simply to give them one good watering to settle the soil, and remove all decayed foliage, to prevent its injuring the other. The Verbenas, Cupheas, Heliotropes, and Lobelias require more care. The cuttings should be inserted in pots properly drained, and filled with light sandy soil, and then placed in a cold frame, and kept close and shaded until rooted.

GREENHOUSE.—This structure must have a thorough cleansing at once, so as to be in readiness for the reception of the hard-wooded stuff when required. There is no danger of frost yet, but if we have much wet weather during the month, delicate-rooted plants, like Leschenaultias, Heaths, Genetyllis, etc., must be removed in-

doors to have protection from the wet. Pot off cuttings of hard-wooded plants that are nicely rooted, to give them an opportunity of being nicely established before winter. Attend to plants out of doors, and see that they do not suffer for the want of water. Thin out the growing shoots of the climbers, to give the wood intended for next year a chance of being thoroughly ripened.

STOVE.—Still maintain a brisk temperature, and give plenty of air, and use less shade than hitherto, to insure the wood of hard-wooded plants being thoroughly ripened. Shut up early in the afternoon. Encourage winter-flowering plants with weak manure-water, and give less water to plants that have completed their growth. A large proportion of the Orchids will have completed their growth for this season, and will now require more air and a fuller exposure to the light.

KITCHEN GARDEN.—The principal spring crops must be sown this month, and it is highly important that everything in connection with them be done at the right time. If any delay takes place, the plants will not attain their full size; and, on the other hand, if sown too soon, they become too big, and run to seed directly we have a few warm days in the spring. Sow Cabbage and Endive in the early part of the month, and Lettuce and Cauliflowers about the 20th. At the same time, sow Tripoli Onion, White Stone Turnip, and Black Spanish Radish. In earthing up Celery, be very careful to keep the soil out of the hearts. As the Celery makes but little progress after it is earthed up, that operation ought not to be performed until after it is nearly full-grown. Take up and store Garlic and Shalots as they complete their growth.

FRUIT GARDEN.—Regulate and train the growth of wall and espalier trees, and where the wood is too thick, remove a few shoots altogether. Protect Morello Cherries and other fruit, which it is intended to preserve on the trees after being ripe, with nets, or the blackbirds and thrushes will soon make short work of them. Make new Strawberry plantations as quickly as possible; and if strong runners are planted, they will form strong crowns this autumn, and bear a crop next season. To plant Strawberries in October or spring, as is commonly practised, is simply a waste of the ground they occupy for the first year.

FORCING.—Prepare the materials for making fresh Mushroom-beds, and spawn those made last month. Vines swelling their fruit must have a moist, growing atmosphere. Give plenty of air to houses in which the crops are ripe, but nail coarse canvas over all openings, to keep out the flies and wasps. The lights should be removed from the early Peach-houses where practicable. Trees growing in houses with fixed roofs should have plenty of air, and receive a thorough syringing two or three times a day. Thin out the growth of Cucumbers in bearing, and water with weak manure-water. Melons, after they are about half grown, should be elevated above the foliage. It is particularly necessary to keep the plants properly supplied with water at this stage; for, if they become dry at the roots, the fruit will split as soon as the plants are supplied with water.

HORTICULTURAL AFFAIRS.



THE ROYAL HORTICULTURAL SOCIETY'S EXHIBITION OF ROSES, July 1.—The exhibition of roses held under the auspices of this Society was considerably below the average of previous years, both as regards the number and the quality of the blooms staged. This was in a large measure due to the unfavourable character of the weather experienced during the spring and early part of the summer. Usually the roses exhibited by the trade growers are the best, but this year those from the amateurs, who were successful in carrying off the principal prizes, were decidedly of the best quality. To give the names of the roses shown in the winning stands would require more space than can be spared, and we shall content ourselves with mentioning the names of the most beautiful and distinct varieties exhibited in the whole of the stands. These were:—Madame Hippolyte Jamain, Pierre Notting, Etienne Levet, Baroness Rothschild, Maréchal Niel, Maurice Bernardin, Madame de St.-Pulgent, Marquise de Mortemart, Xavier Olibo, Niphetos, Camille Bernardin, La France, Jean Rosenkranz, Souvenir d'un Ami, Félix Genero, Madlle. Bonnaire, Exposition de Brie, Madlle. Eugene Verdier, Duchesse de Morny, Claude Levet, Charles Lefebvre, Duke of Edinburgh, Lælia, Eric Morel, Fisher Holmes, Impératrice Eugénie, Pierre Seletzky, Belle Lyonnais, Marquise de Ligneris, Louis Van Houtte, Souvenir de Paul Neron, Madame C. Wood, Emilie Hausberg, Madame C. Crapelet, Marguerite de St.-Amand, Richard Wallace, Bougère, Marquise de Castellane, Catherine Mermet, Horace Vernet, Madame Berard, Abbé Brammerel, Thérèse Levet, Madame Lacharme, Gloire de Santenay, Reine Blanche, Général Jacqueminot, Madame Laurent, Marie Van Houtte, Dr. Andry, Madame Rivers, Henri Ledechaux, Mrs. Veitch, Paul Neron, Baron Adolphe de Rothschild, Mons. Furtado, Prince Camille de Rohan, Souvenir d'Elise Vardon, Alfred Colomb, Ferdinand de Lesseps, Edouard Morren, Adam, Lyonnais, Mons. Noman, and Princess Mary of Cambridge.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION held its thirty-first anniversary festival on Thursday, July 2, at the London Tavern, under the presidency of Alfred de Rothschild, Esq. Many of the leading horticulturalists were present, and several of the leading exhibitors contributed liberally of plants and flowers, and the result was a rich and tasteful display. There was a great and grand show of plants and flowers, and a superb dessert, the gift of friends, was put upon the table. The musical part of the entertainment was not less satisfactory, and contributed in an important degree to the pleasure of the company. The Chairman spoke well and to the point, and in the course of the evening it was stated that the subscriptions amounted to £771.

THE MIDLAND COUNTIES HORTICULTURAL EXHIBITION, July 7 to 11.—This exhibition, we are glad to say, was a decided success from every point of view, and the expectations of the most sanguine were fully realized. The gathering took place in the beautiful Lower Grounds, Aston, which of themselves are always worthy of a visit, and a series of enormous tents covered plants, flowers, and fruits; while the machinery, implements, and ornaments were tastefully arranged on the open lawns. The first tent entered contained stove and greenhouse plants, and various elegant accessories. This opened into another containing fruit, of which there was a grand display, and from thence visitors might proceed into a finished winter garden. Returning and going forward, there was a tent full of stove and greenhouse plants. Then, turning to the left, we enter a tent containing the roses, of which a prodigious number were exhibited, mostly in capital condition. The roses were finished with a central line of fuchsias, palms, ferns, and dracænas, and, to break the flatness of 200 feet run of boxes of flowers, the centre of the length was occupied with a splendid group of new plants. As an indication of the extent of the exhibition, it may be mentioned that of stove and greenhouse plants (the entries included more than one thousand specimens of cut roses) six thousand were entered. The entries of fruit included one hundred and thirty bunches of grapes, ninety pine-apples, twenty-five dishes of peaches, twenty dishes of nectarines, forty-three dishes of strawberries; cherries, apricots, figs, and miscellaneous fruits in endless profusion; while of vegetables the entries included over seven hundred dishes.

SARRACENIA PURPUREA, one of the prettiest of the North American pitcher plants, has been for years flourishing and producing pitchers in abundance in a piece of artificial bog in the Glasnevin Botanic Gardens, and has flowered this season. A remarkable thing in respect of this plant at Glasnevin is, that for several of the winter months it is completely submerged and covered with water. A specimen of the handsome *Cordyline australis* which has been growing out of doors in these gardens for seven years past has also recently flowered.

THE CARPET BEDDING in the grounds of the Crystal Palace, Sydenham, is wonderfully rich and delightfully various, and we advise all students of parterre colouring to see it as soon as possible.

THE NEW PATENT CLIMAX BOILER, invented by Mr. R. S. Dunbar, of the Thames Bank Iron Company, Upper Ground Street, S.E., is probably the most powerful and economical boiler yet invented. It is simple in construction, being made of wrought iron and welded together, will bear great pressure, and having no joints or sockets connecting the various portions together, there is not the risk of leakage, as is the case, unfortunately too often, with boilers having joints more or less exposed to the direct action of the fire. It has a water-way back and front, which adds very materially to its heating power; there are also within the boiler itself two side-flues, as in the Gold Medal Boiler, the fire from these flues passing under the mid-feather, or wings on each side of the boiler before reaching the chimney-shaft. There is also the convenience of feeding from the top, and ample space is provided for fuel to last from twelve to fifteen hours; so that all night-stoking in the most severe weather is dispensed with. It is made in various sizes, from 24-in. to 60-in. in length, the smallest being capable of heating 750 feet of 4-in. pipe. Compared with other boilers, its price is moderate; for instance, a boiler for heating 1000 feet of 4-in. pipe is £18. This amount, we imagine, will be repaid in course of a few years by the saving in cost of fuel. It is easily set in brickwork, there being no complicated flues to make or keep clean; it can be fixed with the ordinary furnace-bars, or the so-called "water-bars." This latter form of fire-bar adds very considerably to the heating power, while there is comparatively little or no risk of leakage.

TO CORRESPONDENTS.

STEPHANOTIS NOT FLOWERING.—*S. G.*—Expose the plant to all the light you can through the autumn and winter to thoroughly ripen the wood, and keep rather dry through the winter. The very best plan possible to induce this plant to flower freely is to take it off the trellis soon, and train it over the roof in one corner of the stove, and let it remain there until the flower-buds are set in the spring, when you can easily take it down and put it on the trellis again. You will obtain more flowers this way than any other. It takes a certain amount of trouble, but not so much as you may imagine. When the young growths are allowed to grow together in a mass, they do not receive sufficient light and air to properly ripen them; and unless the wood is thoroughly ripe, few flowers must be expected.

GRAPES CRACKING.—*A. B. C.*—When the vines are dry at the roots, the skin which surrounds the berries becomes contracted, and a sudden supply of moisture in large quantities swells them out too rapidly, and the consequence of this is, the skins burst. After a long season of drought, through neglect, or any other cause, give a little at a time until the border is thoroughly soaked. Shanking is generally caused by too much atmospheric moisture, and not enough air. When the grapes are colouring, excessive moisture at the roots will also cause it. Guard against excesses of all kinds, if you hope to be successful in grape-growing.

GERANIUM CATERPILLARS.—*M. H.*—Hand-picking is the surest and best remedy for the destruction of the caterpillars spoken of. We grant it is not a very agreeable employment, but it is a labour that will receive ample reward by restoring the plants to a flourishing condition, instead of being eaten up and destroyed. Patience and perseverance are two grand points in gardening matters.

THE NEW HOLLAND PITCHER PLANT.—*S. J.*—This interesting plant will thrive in a house in which a rather close and moist atmosphere is maintained; such, for instance, as would suit ferns without a bell-glass. But as you wish to grow yours with the ordinary stock of greenhouse plants, we should advise you to proceed in

this way : Take a pan about a foot in diameter, fill it with water, and then put a few pieces of brick in the centre to stand the pot on, and to raise the bottom of the pot half an inch above the level of the water. Stand the plant on these, and cover with a bell-glass large enough to rest on the sides of the pan ; give air by tilting up the glass, and keep in the warmest corner of the house. This must be regulated according to the weather. In dry hot weather, when the house is thrown open rather wide, keep the glass rather close ; and when the atmosphere is close, and the house partially or quite closed, give plenty of air by tilting up the glass higher ; shade from the sun, but take care not to entirely shut out the light. It should have plenty of water through the summer, with less through the winter months. At all times, the higher the temperature the plant is grown in, the more moisture will it require. The pan should be dry from October to March ; and if the temperature is likely to go down too near the freezing-point, it will be a capital plan to cover the glass with a warm woollen material. The main point to be observed in the culture of the *Cephalotus* is to pot in some light fibry stuff through which the water can easily circulate, and the roots have free action, and it may be said that there is nothing better than a mixture of rough sandy peat and sphagnum moss chopped up rather small. This, with a good drainage, will grow them to perfection. Fill the pot half full of crocks, and in potting elevate the plants just above the level of the rim, and fill in rather firmly. With careful attention to the few points we have mentioned, you will experience no difficulty in cultivating it satisfactorily.

C. N. L., Torquay.—The shrub is *Weigelia rosea*.

Mrs. H.—Your plant is the variegated variety of Common Wormwood, a good thing for a dry rockery.

A Young Beginner.—Bulbs of the Tree Onion may perhaps be obtained of Messrs. Sutton and Sons, Reading, who, if they can supply them, would tell you the price. You might also try Messrs. Barr and Sugden, 12, King Street, Covent Garden, W.C., or Messrs. J. Carter and Co., 227 & 238, High Holborn, W.C. The flower enclosed in your letter is from one of the fancy *Pelargoniums*, but from which variety we cannot undertake to say, for naming florists' flowers is quite out of the question. The cuttings are not very difficult to strike when properly managed. In taking the cuttings, select the shoots produced this season, and cut them up into portions consisting of two or three joints each, the top joint to have a small shoot pushing from it. The tops of the shoots may also be made available for cuttings if taken off just below a point where the wood has become firm. The plants must be placed in the open air for a fortnight or so, previous to the cuttings being taken to ripen the young wood. When the cuttings are prepared insert them round the sides of five-inch pots, filled with light sandy soil ; shade them during the first week or so, and keep the soil just moist. When nicely rooted pot off separately ; winter them in a rather warm corner of the greenhouse, and keep them rather dry at the roots. In February pinch out the growing point of the principal shoots, and shift into pots one size larger. The *calceolaria* cuttings can be kept through the winter in a cold frame, or under hand-lights, with no more protection than that afforded by a mat thrown over the glass in frosty weather.

CARNATIONS FOR WINTER FLOWERING.—*A Constant Reader.*—In the *FLORAL WORLD* for October, 1868, p. 302, appeared an article on the cultivation of carnations to flower in winter. The remarks quoted referred to the winter flowering kinds mentioned at the end, and intimated that they may be had in bloom during the winter season. The other varieties bloom during the winter.

GATHERING EVERLASTINGS.—*M. S.*—All everlastings should be gathered before they expand fully. To preserve the whiteness of the white ones, we suppose attention to the rule just given to be of the first importance, and, next, to keep them always protected from dust. The white everlastings of the shops are probably bleached by means of sulphur vapour. The coloured flowers can be dyed a deeper tint by means of Judson's dyes, which can be procured of most chemists and grocers.

VINES ON OPEN WALL.—*Amateur.*—To secure fine bunches thin them regularly, removing the bunches entirely where they are crowded together, and thinning out the berries in the bunches with a small pair of scissors to allow them to swell. The bunches must not be thinned too much, or they will be loose and fall about when placed upon the dish. The best fruit is that which ripens under the shade of the leaves, but if the vine is overcrowded, it will benefit it to remove a moderate number of the laterals.



APRICULATA FABRICATOR

APHELANDRAS.

(With Coloured Illustration of *Aphelandra fascinator*.)

BY GEORGE GORDON.



THE magnificent Acanthad which forms the subject of the coloured plate of this month's number of the FLORAL WORLD, differs from the majority of ornamental leaved plants in combining with its beautiful leafage a most brilliant inflorescence, and therefore presents a most attractive appearance, even when not in flower. *Aphelandra fascinator* was discovered so recently as 1872 in the half-shaded forests of New Granada; and, thanks to the facility with which it can be propagated, has become sufficiently plentiful to admit of its being offered by all the leading nurserymen. The leaves, as a glance at the accompanying illustration will show, are of a rich, deep olive green, overlaid with silvery bands on the upper surface; and on the under side are of a rich purple violet. The flowers are of a dazzling vermilion scarlet, and when held up in the full light, have the appearance of being powdered with gold. The plant is of a free, vigorous habit, and the flower-spikes of strong plants attain a very large size. Like other members of the same genus, it produces its flower-spikes during winter and autumn, when from their surpassing brilliancy they are most to be desired. It may, in brief, be described as one of the most valuable of recently introduced stove plants, and well deserving a place in the most select collection.

The genus to which this superb species belongs is by no means extensive; yet there are several others well deserving of the attention of amateurs possessing the convenience of a plant stove; and it may be suggested with advantage, that a few of the weedy coleus and caladiums with which amateurs not unfrequently crowd these structures, should be removed to make way for them.

Aphelandra aurantiaca, introduced from the state of Tabasco as far back as 1847, is very beautiful; but it is quite surpassed by *A. aurantiaca Roezli*, introduced some twenty years afterwards. The latter has handsome deep glossy green leaves, which, in the winter, are surmounted with fine spikes of brilliant orange scarlet flowers.

A. nitens is a near ally to the preceding, but it is sufficiently distinct to render it desirable to have both in the same collection. The leaves of this fine species are of a deep brownish green, and highly polished on the upper surface, and deep vinous purple underneath. The flower-spikes attain a large size under good cultivation; and as the flowers are of a deep rich vermilion scarlet, they in combination with the dark shining foliage, present a most effective appearance during the winter months. It was introduced from Guayaquil, in New Granada, and is in every way a most desirable acquisition.

The cultivation of these charming Acanthads is by no means difficult, for they are readily propagated by means of cuttings, and

usually grow very freely. Well established plants, in three-inch pots, purchased at once, of any of the kinds mentioned, will bloom during the forthcoming winter; but they will not present such a brilliant appearance as large specimens. Nevertheless there will be an advantage in buying now, because the plants will, when pruned back in the spring, produce a number of side-shoots, and a plentiful supply of cuttings will be secured. The young shoots taken off close to, or one joint from, the stem, will, with the assistance of a brisk bottom-heat, strike freely. The most satisfactory results will be insured by inserting the cuttings singly in small sixties filled with a mixture of peat and sand; and then plunging them to the rim in the propagating bed in the stove, and shutting them up close. They will soon strike and be ready for a shift into pots two sizes larger. Over potting is not good for them, but a shift from small sixties to five-inch pots will not be too much. The compost should consist of equal parts turfy loam, fibrous peat and leaf-mould, and a good sprinkling of silver sand. A moderate bottom-heat will be of considerable value in assisting them to make new roots and become established quickly; but even without the aid of bottom-heat they will soon recover from the shift, and commence to make a vigorous growth, provided they are placed in a warm corner, and lightly sprinkled overhead occasionally. Immediately they are nicely established, after the first shift, and the roots begin to run round the outside of the pot, each plant must have the point nipped out, to promote the production of side-shoots. In a very brief period they break freely, and will be in need of repotting. It must be determined at this stage whether medium or large specimens are required. If the former, shift the strongest into eight-inch pots, and the others into six-inch pots; to produce large specimens, put three plants together in ten-inch pots, which may be readily done by squeezing the upper part of the ball of soil. After this no stopping or repotting will be required, and all the attention they will need will be to supply them with water, and maintain the foliage in a clean state. But as they are less susceptible to attacks from insect pests, than the majority of stove plants, the maintenance of the foliage in a cleanly condition will not be very difficult. Old plants will require pruning in the spring; and after they have started nicely, to be turned out of the pots, the ball of soil reduced, and put in pots of the same size again. They will then require repotting as may appear necessary; but, as a rule, one shift will be quite sufficient to insure a vigorous growth throughout the summer.

THE CAEN ACADEMY OF SCIENCE AND ART, as we learn from "Nature," proposes as the subject of the *Le Sauvage* Prize, of the value of 4000 francs, to be awarded in 1876, the question of the "Function of Leaves in the Vegetation of Plants." The Academy does not want simply an exposition of the present state of science on this important question; it requires, besides, from competitors, exact experiments performed by themselves, and new facts tending to throw light upon, invalidate, confirm, or modify doubtful points in the theories at present accepted. The essays to be sent to the Academy before January 1, 1876.

THE ROMAN HYACINTH AND NARCISSUS.

BY WILLIAM GARDINER.



OR some five or six years past, I have grown a good batch of these two flowers for blooming during the months of November and December; and they are usually so much admired, that I think a few should be grown wherever winter flowers are in request.

The *Roman Hyacinth*, it may be said for the information of those who are unacquainted with it, produces very small spikes of pure white flowers; and blooms so early that by forcing the bulbs gently it may be had in bloom in November. The bulbs cost about threepence each when bought by fifty or the hundred.

The *Double Roman Narcissus* has double white flowers, and may be had in bloom at Christmas with the assistance of very little artificial heat. The bulbs cost about twopence-halfpenny each when bought by the dozen; the cost of fifty or so of each is therefore very trifling. I invariably buy a hundred of each, as the flowers are so useful for bouquets, as well as for decorating the drawing-room and conservatory.

They are both grown in precisely the same manner. The bulbs are bought the first week in September, and potted immediately on their being received, in five-inch pots, three bulbs in each. The pots are prepared in the usual manner, and a mixture of loam, leaf-mould, and manure is employed. The bulbs are buried in the soil, just deep enough to leave the base of the neck visible. The pots are placed upon coal ashes, and covered in the usual manner; and those required in flower early, are taken from the plunge bed directly the roots make their appearance round the outside of the ball of soil, and plunged in a brisk bottom-heat. I generally prepare a pit for them by filling it to within nine inches of the glass, with leaves gathered in the autumn. The pots are plunged to the rim, and the warmth derived from the leaves soon starts the bulbs into active growth. I have found it, as a rule, to be desirable to place those required in bloom in November, in the forcing pit about the middle of October. I divide the stock into two equal portions, and place the second portion in the forcing pit directly after the first has been removed to cooler quarters. By this arrangement a good succession of bloom is insured until the earliest of the forced hyacinths and narcissus of the ordinary type are in flower. In contributing this note on these flowers, I feel assured that all who follow my advice and grow a few, will be delighted with the result.

FRUITING OF FREMONTIA CALIFORNICA.—A large specimen of this handsome shrub in the Royal Botanic Garden at Kew, flowered profusely this spring, and is now bearing ripe fruit. As it is still very little known, we would observe that it is a deciduous shrub, with small lobed leaves, and handsome pure yellow flowers, about two inches in diameter. The specimen in question is growing against a wall, but it would probably succeed without protection of any kind.

September.

HOW TO GROW LAPAGERIAS.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



ALTHOUGH less rampant in growth than the majority of greenhouse climbers, there are none possessing more value than our old friend *Lapageria rosea*, and its pure white variety, known as *Lapageria alba*. They are not so well adapted for planting in dark corners or in out-of-the-way places in conservatories as the passion-flower, as they make but slow growth at first, and the young shoots, as they emerge from the ground are in great danger of being eaten off by snails, etc. When, however, they are placed in a favourable position, and have attained a considerable size, they are well able to take care of themselves, although it is good practice to watch for the young suckers in spring, and adopt measures to keep the snails from them. They also succeed admirably in town conservatories, as is demonstrated by the splendid specimens of both forms in the corridor in the nurseries of Messrs. J. Veitch and Sons, at Chelsea. The position in which they are planted is by no means favourable, yet they grow freely, and bloom abundantly throughout the summer and far into the autumn.

The only difference in *L. rosea* and *L. alba* is the colour of the flowers. Those of the former being a rich shade of rosy carmine, whilst those of the latter are pure white. The former is now cheap, good plants being obtainable for a few shillings; but the smallest plant of the latter, owing to its rarity, cannot be procured for less than three guineas, and there appears to be some difficulty in meeting the demand, even at that price. The propagation of Lapagerias otherwise than by seed is very slow work, and the white variety cannot be raised from seed the same as the other. It seeds freely, but no dependence can be placed on the seedlings, as a very large proportion will produce flowers of a rose colour. Therefore the trade growers have to propagate by means of layers and cuttings, and consequently the work of increasing the stock is carried on very slowly. The rose-coloured form can, on the other hand, be raised freely from seed, and seedlings put under good management grow away freely from the first. It is true the seedlings vary a little in the quality of the flowers, but the difference is so small, that it need not occupy a moment's consideration. The flowers of both forms are of immense value for head-dresses of natural flowers. They have a very rich appearance, and from their waxy texture they suffer less in a heated room than any other flower with which I am acquainted, and there is no danger of their fading before the end of the entertainment.

In commencing the cultivation of Lapagerias, considerable patience must of necessity be exercised, for the growth is slow during the first two years or so, but afterwards they progress rapidly, and soon cover a large space. It matters not whether they are grown

in a pot or box, or planted in a border. The border is, perhaps, to be preferred in structures in which no staging is fixed, but that system would be quite unsuitable where there are stages, because of the risks to which the young growth would be exposed. In the house in which our *Lapagerias* are growing we have a bed, upon which the general stock of plants is placed, and as the surface of this is about four feet above the pathway, it is near the glass, and the plants are, practically speaking, out of the way of the snails. In similar positions beds are the best; but in the majority of houses it will be better to put them in pots or boxes, and to place these receptacles in a position so that the rim or edge, as the case may be, is on a level with the stage, or an inch or so above it. Instead of putting them in a small pot, and shifting them on as may become needful, let a large pot or a box, not less than thirty inches square, be fixed in its position, and then prepared for the reception of the plant. In the first place, put from four to six inches of crocks in the bottom, cover with a layer of rough peat or flaky leaf-mould, and fill with peat and loam in the proportion of two parts of the former to one of the latter. It must be mixed together before it is put in the pot, and as this is being done, add a liberal sprinkling of sharp silver sand. Press rather firm, put out the plants, and let the supplies of water be moderate until the plants are well established. *Lapagerias* luxuriate in an abundance of moisture at the roots, and, when in a small state, sufficient must be applied to thoroughly moisten the soil about the plant, but no attempt should be made to soak every particle of soil contained in the pot or box, because of the risk of its becoming sour by the time it is well filled with roots.

With reference to the general management of these plants, it will suffice to say that the soil must be maintained in a moist state at all times, but during the summer season water must be supplied in a liberal manner; and provided the drainage is all right, there will be no danger of their receiving too much. The roots should be trained near the glass, and after the plants have attained a considerable size, a portion of the old wood must be removed annually, to make way for the young growth. If thinning is neglected, the young wood from which the flowers may be expected will not enjoy sufficient light and air to insure their proper development, and the natural sequence, a profusion of flowers.

SPECIMEN ZONAL PELARGONIUMS.

BY J. WILLIAMSON.



SPECIMEN ZONAL PELARGONIUMS are so valuable for conservatory decoration during the summer that I shall make no apology for alluding to their production. Something better is required in the conservatory than plants of the same size as those bedded out in the flower garden, but the huge convex specimens presented at first-class exhibitions are not desirable; the former produce a very poor effect, and

the latter take up too much space. For ordinary decorative purposes, such as the embellishment of the conservatories usually erected in small gardens, nicely grown specimens of a medium size are the most useful. There is nothing in the whole round of garden management so simple as the production of these, and in a very few words I shall be able to point out how amateurs, like myself, may secure specimens with but very little trouble, and really no difficulty. In making a beginning with small plants in pots you lay yourself open to a lot of hard work and a considerable amount of vexation, but in acting upon my advice very little labour is incurred and all vexation will be avoided. I commence with plants growing in the open borders, and the results are most satisfactory. We have several borders filled with roses, the more showy herbaceous plants and bedders. The latter consist principally of zonal pelargoniums, and as they are not crowded up in the same manner as those in the beds, they branch out freely and make a good growth. Early in August I go round, knife in hand, and select about thirty of the most promising, and prune them moderately. It is not needful to prune them severely, because when you do this the centre of the plants will be too crowded. At this stage they break freely, each shoot producing from two to four laterals, according to its strength. They receive no further attention until the end of September, when they are lifted and potted. They are lifted carefully so as to avoid injury to the roots; the latter are then shortened slightly, and the plants put in five or six-inch pots; but if practicable they are put in the smaller sizes, as they can then be shifted more conveniently, in the spring following, into the pots in which they are to flower. The pots are carefully drained, and good turfy loam, with a fair sprinkling of silver sand, is used. After the potting is completed, they are placed in a cold frame with the lights removed, excepting when danger from frost is apprehended. The lights are then drawn on, and mats are also brought into requisition if considered needful. But until there is a likelihood of a frost the plants must be freely exposed, even at the risk of their losing all their leaves. When newly potted a light sprinkle occasionally with the watering can will be beneficial, but too much moisture and shutting them up in a close atmosphere are alike hurtful. Towards the end of October they are removed to a light and airy position in a span-roof house, devoted during the winter to bedding plants.

During the winter months they are supplied with sufficient water to keep the soil just moist, and no more. When they begin to grow freely in March they will require more liberal supplies of moisture and a shift into larger pots. Eight-inch pots are the most suitable for them to flower in, as they are convenient to move about and afford an abundant root space. At this shift I mix a little decayed manure with the loam, and after they are repotted place them in a frame and ventilate freely in favourable weather. They are stopped once, and once only, but all the flower buds are nipped off until three weeks or so before they are wanted for the conservatory. Very little training will be required, but a few neat stakes judiciously placed will be useful in regulating the shoots. No attempt should

be made to train them down to a flat surface, for shapely bushes are in every way the most suitable; they have a more natural appearance, and can be intermixed with the ornamental-leaved plants to far greater advantage.

HYACINTHS FOR DECORATIONS.

BY ROBERT OUBRIDGE,

Church Walk Nursery, Stoke Newington, N.



BY a judicious system of culture, Hyacinths may be had in splendid condition from Christmas until the end of March; and during their season they are, it may be safely said, quite unsurpassed. They can be employed in the decoration of the conservatory in the pots in which they are grown; or they can, if required, be turned out of the pots and put singly in glasses, or be packed several together in fancy baskets, china bowls, and other receptacles. The necessary disturbance at the root affects them so little, that they retain their freshness and beauty for nearly as long a time as they would do if left undisturbed in the pots. Few plants will submit to this treatment without suffering; and certainly nothing will present a brighter appearance, or diffuse a more grateful perfume during the first three months of the year, than a well-selected assortment of hyacinths. I know these flowers are well appreciated, but I have considered it necessary to mention these facts to show that they deserve to be grown more extensively than has hitherto been the case.

The great question of expense has of necessity to be considered by amateurs of limited means, in making up their bulb orders; and I hope to be able to show how a far better display of bloom may be produced for a given outlay than is usually the case. In looking through the annual bulb catalogues, amateurs are sorely tempted to purchase varieties which command comparatively high prices, under the impression that they are so much better than others of a similar colour at a cheaper rate. Very often they buy varieties at eighteen shillings a dozen, which are no better—and, in some instances, not so good—than those which may be purchased for one-third of the price; and they have one dozen, instead of three. The prices of hyacinths are not always an indication of their value from a decorative point of view, as I shall be able to explain in a very few words. Some varieties are more difficult to propagate than others; some are more recently introduced, and owing to the comparative scarcity of the bulbs in both cases, they command higher prices. Several of the new hyacinths are very fine, but unless for exhibition purposes, they can be dispensed with. The amateur, unless he has plenty of money to spare, should buy several bulbs of a few first-rate cheap sorts, instead of one bulb each of a large number of varieties. He should, in fact, act on the same principle as I do in purchasing my bulbs for growing for market; but instead of buying them by

the thousand, he will, of course, buy them by the dozen. At the end I will give a selection of cheap sorts, and it is consequently not necessary to allude to this part of the subject further.

A grand point in the production of thumping spikes, is to begin early; I should therefore strongly advise the purchase of the bulbs before September is out, and to pot them immediately afterwards. You may have good spikes from bulbs potted in December, or even so late as the early part of January: but they are in no case equal to the spikes the bulbs would have produced had they been potted at the proper time. Especially is early potting necessary when it is intended to force them to flower at Christmas or during the first two or three weeks in the new year. To state the case plainly, those required in bloom during the Christmas and New Year's festivities should be potted before the end of September, because they must of necessity be forced into bloom; and it is practically useless to take hyacinths into the forcing-pit before the pots are well filled with roots. Those to bloom after the end of January must be potted by the end of October, or middle of November at the latest, to insure spikes of the finest quality.

In growing hyacinths for decoration, big pots and complicated mixtures are alike unnecessary. For general purposes, they may be grown in either five or six-inch pots; but when required for filling fancy baskets or vases, they should be put in pots three inches in diameter. The compost should consist of equal parts turfy loam and old hot-bed manure; the loam to be chopped up moderately, and the manure then incorporated with it, and a rather liberal proportion of grit, such as river sand or road drift, added; silver sand may be used, but the commoner grit will answer the same purpose. In preparing the pots, put a few pieces of crock in the bottom; cover with a layer of manure or leaf-mould, and then proceed to fill with the prepared compost. The bulbs must be buried to about two-thirds of their depth, and the soil pressed firm about them, to prevent their toppling over when in bloom. The soil must be used in a rather moist state to render the application of moisture unnecessary until their removal from the plunge-bed.

As it is needful to exclude the light from the bulbs until the pots are well filled with roots, they should be packed together and covered with some loose material that affords no harbour for worms.

We have, after many years' experience in the cultivation of many thousands of bulbs, found it good practice to make up a bed of coal-ashes not less than six inches in depth, and stand the pots close together upon it, and then heap over them about twelve inches of spent hops. In place of the hops cocoa-nut fibre refuse, flaky leaf-mould, or even coal-ashes, may be substituted. The latter are the least to be desired, and when they are used, the bulbs ought to have a small pot turned over them to prevent the ashes touching them. They can remain in the plunge-bed until the leaves are from two to three inches in length, if desired; but they cannot be left after having passed this stage without injury. When required in bloom as early as possible, they can be taken from the bed immediately the roots begin to run freely round the outside of the pot. As

a rule they should be removed to a cold frame when well rooted, and the leaves are an inch or so in length.

In forcing hyacinths, the main points are to place them in a pit or house where they will have the assistance of a brisk bottom-heat, such as that afforded by a bed of newly-gathered leaves or spent hops, and be near the glass. Those required for succeeding the first batch will soon come into bloom if placed on a shelf in the forcing-pit. After they commence to grow freely, liberal supplies of tepid water will be required. Those which come into bloom with no more assistance than that afforded by a cold frame will be extremely useful, and, as a rule, those who grow a few dozen only should not force them at all.

The following selection comprises a proper proportion of the several colours, and contains none but cheap varieties of first-class quality :—

SINGLE BLUE SHADES.—*Baron Van Tuyl, Charles Dickens, Emicus, Emilius, L'Ami du Cœur, Grand Lilas, Orondates.*

SINGLE RED SHADES.—*Amy, Diebitz Sabalskansky, Gigantea, Homerus, L'Ami du Cœur, Madame Hodson, Norma, Robert Steiger, Sultan's Favourite, Veronica.*

SINGLE WHITE.—*Alba Superbissima, Grand Vedette, Grandeur à Merveille, Grand Vainqueur, La Candeur, La Virginite, Semiramis, and Queen Victoria.* The double varieties are not so suitable for amateurs, and I have not included any in the selection.

NOTES ON NEW BEDDERS.

BY JOHN WALSH.



THIS has been one of the most trying seasons on record for bedding plants, and in many gardens they have only just commenced to grow freely, and show their true character. In gardens where they were strong and well hardened when put out, and well cared for afterwards, they are making a good display, and the flower garden is putting on its most attractive appearance; but in gardens where the plants were insufficiently hardened, not very strong, or have not had much special attention since, they present a sorry appearance, many blanks are to be found, and we shall be at the end of the month before the flower garden will be at its best. The brilliant weather experienced at the end of April tempted many professionals, as well as amateurs, to commence bedding out in earnest, and the result was, large numbers of plants were killed by the frosts and easterly winds that followed.

I have upon more than one occasion advised the readers of the FLORAL WORLD not to plant tender things until quite the end of May, and in no year has the soundness of this teaching been more clearly exemplified than in the present season. The bedding arrangements in the Metropolitan parks are now in perfection, and

September.

a better opportunity could not be had for inspecting them than during the present month. The arrangements in Hyde Park are, as in previous years, remarkable for extreme richness and the taste evinced in carrying them out. There are good examples of carpet-bedding in Victoria Park, and Battersea still remains the headquarters of subtropical gardening. The terrace and Rose Mount at the Crystal Palace are also very attractive, for the superintendent of the exterior gardens at this well-known resort has carried out a system of carpet-bedding which is as remarkable for its originality as it is for tastefulness.

The bedders introduced this year are not large in number, neither are they remarkable for high quality. A few good things have been introduced, and to these reference will be made, as well as to those introduced during the one or two years previous.

We have had but few really good bedding plants introduced within the last two years, and the new varieties sent out this year have been, with but one or two exceptions, better adapted for pot culture than for the flower garden. As a first-class scarlet Geranium, our old friend *Vesuvius* is as yet unsurpassed, and, considering its brilliant colour, neat habit, and profusion of bloom, we may fairly conclude that it will be a long time before it is put on one side by something better. We, however, require other shades in addition to scarlet, and can consequently proceed to discuss the merits of other varieties, without implying that they supersede the variety here mentioned. Turning to those sent out last year, and which have now undergone a thorough trial, I would mention, as being decided acquisitions: *Comtessa Quarta*, bright pink, strong in growth, but free flowering; *General Outram*, a fine variety, producing freely large trusses of deep crimson flowers; *Marquis*, orange-scarlet, dwarf, and very free; *Paul Pry*, a useful variety, with magenta-crimson flowers, useful for its distinctiveness; *White Clipper*, has white flowers, and is well deserving of notice as one of the finest of white varieties for bedding purposes; *Woman in White* has also white flowers, and is said to be as floriferous as *Vesuvius*, but unfortunately I omitted to procure plants early enough to enable me to speak with confidence respecting it. In examining my stock of those sent out the year previous, I have made note of the following as possessing sufficient merit to justify their being planted extensively: *Aigburth Beauty*, a scarlet-flowered variety, remarkable for its neat growth and floriferous character; *Crimson King*, dark crimson, one of the finest bedders of its colour; *Forest Hill Nosegay*, a distinct variety, producing a profusion of medium trusses of salmon-coloured flowers—it is really the only salmon-coloured nosegay worth growing for bedding; the *Rev. T. H. Fenn* is also a grand dark crimson bedder, and forms a fine contrast to those with orange-scarlet flowers; *Amaranth*, is a grand pink variety of robust growth, with huge trusses; *Maia*, has purplish-pink flowers, which are produced in profusion in medium-sized trusses; and *Bella* is in the way of that well-known variety Christine, the trusses are larger, borne with a greater degree of freedom, and it does not seed so freely. Another comparatively new pink-flowered nosegay is Hib-

berd's *Feast of Roses*, which, without question, is the best of the class for large beds; the flowers are of a fine deep pink, and borne most profusely throughout the season.

The geraniums grown for their foliage require a passing notice, although it is not needful to criticise the new introductions to the several sections into which they are divided, because they do not appear to be sufficiently distinct from those already in commerce. For the information of those readers who may be in doubt as to the best sorts to grow, it will be useful to make a few comments on the best of the established varieties. In my collection the best of the golden zonals are—*Edward Richard Benyon*, a vigorous grower, with highly-coloured leaves; *Peter Grieve*, a grand variety, with large leaves, overlaid with fine zone; *Louisa Smith*, well coloured, with fine bushy habit; *Sophia Cusack*, like the preceding, remarkable for its compact, freely-branched growth; *Victoria Regina*, has large, well coloured leaves, and a good habit.

Amongst the silver zonals there are not many to surpass *Italia Unita*, which was one of the very first sent out; but the best for bedding are—*Caroline Longfield* and *Lass o' Gowrie*, both of which are well coloured, and have a good habit. More than these are not required, because of the close resemblance the several varieties bear to each other. The most desirable of the silver-edged varieties are—*Miss Kingsbury*, *Princess Alexandra*, and *Queen of Queens*.

We have several showy bedders amongst the bronze zonals; and in my collection, which is now very large, the undermentioned have afforded unmistakable proofs of their superiority over others, namely:—*Black Douglas* and *Bronze Queen*, two dark-leaved varieties; *Crown Prince*, *Imperatrice Eugenie*, and *Waltham Bronze*, three strong growers, with bright and most effective foliage; and *Sybil* and *the Moor*, two rather dwarf growers, suitable for front lines. The most effective of the golden-edged varieties are—*Crystal Palace Gem*, *Golden Banner*, and *Yellow Gem*, for ordinary bedding; and *Creed's Seedling* and *Robert Fish*, for divisional lines and edging purposes.

Turning from the geraniums to the dwarf Lobelias, we find several first-class novelties. Of the speciosa type, I can strongly recommend *Brilliant*, which is neat, and produces a profusion of deep blue flowers. As a companion to this, *Mazarine Gem* deserves attention. They are similar in habit, and the flowers are rich marine blue, with white eye. *Porcelain Brilliant* is similar to the preceding, but has flowers of a porcelain blue, and in the flower garden is very effective. Amongst the varieties of the *Pumila* type, with a dwarf cushion-like growth, *Lustrous* holds a foremost position. It is a little taller than the well-known *Pumila grandiflora*, more wiry in growth, and blooms continuously throughout the season. It also stands rough weather better than the variety here alluded to, and will, eventually, quite supersede it. Another good variety of the same type is *Omega*, which has deep purplish lilac flowers, quite as large as those of speciosa. It is unquestionably the best of all with purplish and lilac flowers. We have also had presented to our notice, during the summer, two lobelias, which

promise to be most valuable acquisitions. One is a counterpart of *Pumila grandiflora*, with pure white flowers, and is known as the *Duchess of Edinburgh*. The other was exhibited by the Pineapple Nursery Company, of Edgware Road, as *Pumila magnifica*. This attains a height of six inches, is very compact, and produces a profusion of deep blue flowers. It may be said to possess the vigour and large flowers of *speciosa*, and the compactness and density of bloom of *pumila*.

There is nothing new to note amongst the bedding Verbenas, Petunias, and Heliotropiums, and no additions of importance have been made to the list of miscellaneous bedders. The Golden Chickweed, *Stellaria graminea aurea*, is very rich in colour, and in some respects surpasses the Golden Feather; but it is less useful than that old and popular subject. *Coleus Verschaffelti splendens* is undoubtedly the highest-coloured of the coleus adapted for bedding, and well maintains the high character I gave it when first introduced. That and *Alternanthera magnifica* are the two best dark-leaved bedders—the former for the centre of beds, and the latter for front lines, or for panel or carpet beds generally.

In conclusion, I would strongly impress upon my readers the importance of propagating bedders early, for cuttings taken when the plants are fresh strike more freely than those taken later in the season, and, moreover, make better plants. The geraniums should be struck in a sunny border, and when nicely rooted, lifted and potted separately, or two or three together. Many amateurs fail in securing good stocks of favourite subjects, through leaving the propagation until late in the season, when the growth has become sappy, and in a condition quite unfit for propagating purposes.

DAYLIGHT DECORATIONS FOR THE DINNER-TABLE.

BY MISS A. HASSARD,

St. Ronan's, Upper Norwood.



SOME time since, in an article on table decoration in the *FLORAL WORLD*, I mentioned that at a future date I should give descriptions of vases, etc., suitable for the decoration of the dinner-table when seen by daylight only, as many charming arrangements can be made with shades of colour, which if subjected to artificial light, would appear to anything but advantage. I shall first treat a group for the dinner-table, as that now forms one of our most important floral decorations.

We will suppose it is for the decoration of a circular table. Well, in the centre I think I should place a stand in the form of a slender grass trumpet, rising out of a flat tazza. Round this I should place four gracefully-shaped small glass baskets, and between each basket a rather large-sized specimen glass. Having selected the stands, the next point to be settled is what flowers are to be used

for their adornment? The centre-piece I think I should arrange with the following. Round the edge of the tazza, fronds of *Adiantum Farleyense*, and *Pteris serrulata*. In the tazza I should arrange yellow *Roses*, and sprays of *Bougainvillea*, and a long spray of the latter could be gracefully twined round the stem of the trumpet. Through the blooms of *Bougainvillea* and roses should be interspersed light fronds of *Adiantum cuneatum*, and a few wild grasses would tend to enhance its light appearance. A few dark-tinted rose shoots, if arranged amongst the yellow blooms, have an excellent effect. In the trumpet, mauve and yellow *Orchids*, light *Fern fronds*, and *Grasses*, would form an elegant plume; a few of the fern fronds should be so placed as to droop round the mouth of the trumpet; a few fronds of *Lygodium scandens* inserted in the trumpet and allowed to trail down amongst the flowers below would look well. Where this is not obtainable, sprays of Japan Honeysuckle might be substituted.

The baskets I should be tempted to arrange in pairs to match, two white and deep crimson, and the other pair in blue and white. The baskets I should first fill with growing *Selaginella denticulata*, and twine round the handle of each a spray of *Lygodium scandens*. If obtainable, in the way of white flowers, I should use a great many *water Lilies*; for crimson, some very deep shaded rich tinted *Roses*; and for blue, *Salvia patens*, and clear light-shaded *Delphiniums*; through these some light ferns should be mixed, and if some grasses are obtainable, use them also. In the specimen glasses I should make the little bouquets match, and compose them of a *yellow Rose bud*, a few single flowers of *pink Pelargoniums*, some tinted rose foliage, a flower of *Stephanotis*, some *Fern fronds*, and a few spikes of *wild Grasses*.

A charming vase for the drawing-room could be composed of the following flowers: *blue Irises*, white *water Lilies*, and sprays of *Passion-flower*, with the addition of *Ferns* and *Grasses*.

A vase of flowers, which was exhibited in the class for wild flowers arranged for effect, and to which was awarded the first prize at the exhibition of the Tunbridge Wells Horticultural Society, held on July 3rd, would be very effective for the above purpose, so I think I cannot do better than endeavour to describe it. The vase itself resembled a Marchian one in form, and each tazza and trumpet was filled with *Dog-roses*, blue *Forget-me-nots*, brown-tinted sprays of *Oak-leaves*, and *British Ferns*; in each tier the flowers and foliage were most charmingly intermixed. In addition to those just named, in the trumpet was placed a long trailing spray of *white Convolvulus*, which drooped down, and was twined in a most graceful manner. This would make a good centre-piece for the dinner-table as well as a drawing-room vase. The wild convolvulus is, as a rule, supposed to be useless in a cut state, on account of its fading so soon. But this is a mistake, for if it be placed in water quickly after being cut, and not allowed to once flag, it will remain fresh for four or five days, and the blooms that were buds on the spray when cut, will open out into full bloom, the same as if the spray were still growing.

The blooms of Clematises are very useful at this season for daylight arrangements, their several lovely mauve and purple tints showing to great advantage when mixed with other flowers and foliage. In the way of a creeper the *Cissus discolor*, as a rule, goes well with nearly all daylight shades, and though it shows itself up by artificial light also, it does not appear to the same advantage as when seen by daylight.

The decorations on a table for daylight use, need not be of colours only which look well by daylight. Any shades can be employed, but the summer months afford us an opportunity of making use of those colours which we could not employ at any other season; as when subjected to artificial light, their beauty would be destroyed, and as a rule, this is nearly always the case with delicate and neutral tints.

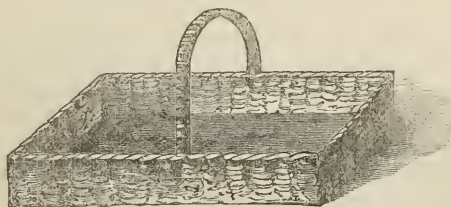
COLLECTING AND PRESERVING FUNGI.

BY F. Y. BROCAS.

COLLECTING FOR THE TABLE.



FIRST procure an oblong flat-bottomed wicker basket, about four to six inches deep, but with no lid, such as is commonly used by butter salesmen in country markets. Have a clean cloth large enough to line the whole of the basket, and form two folds over the top. Also procure a sharp knife and a house painter's brush. Select dry weather, if possible, and go out as early in the morning as you can conveniently. When you reach your collecting-ground avoid most carefully all fungi that have been broken by cattle or other causes, also all which from their shrivelled appearance, change of colour, or otherwise, indicate they have passed their prime, selecting only those which are still attached to the earth or other substances, and are still living and in a growing state; collect each separately; first clean



BASKET.

away with the brush, all dirt, dust, grass, or foreign substances, especially flies; next, cut off the root a good inch from the extremity, and throw away with it the attached mould. You will now readily see, by the porousness of the stems, which are attacked by maggots. Such will always be the oldest, and had better be kept in a corner of the basket by themselves. The cloth should be constantly kept covered

over the fungi, both while collecting and returning home, to prevent the attack of flies, etc., which are always on the look-out; in fact, where they are in any abundance it is well to collect and prepare them in heaps on the ground and put them all in the basket at once, as by constantly opening you may truly shut in instead of out many of your greatest enemies.

The above directions will stand good for most of the agarics, helvellas, morells, boleti, lycoperdons, etc.; there are a few exceptions, however, as *Agaricus atramentarius* and *cornutus*, which are of such a juicy, or deliquescent, nature that, in a few hours or less, a large portion of the fungus turns to liquid, and would make a miserable mess and confusion in a basket with other species. They should, therefore, be collected in a large pie-dish or some other earthen vessel.

The truffle will require a very different process in collecting, the task being generally left to dogs trained for the purpose, and known as truffle-dogs. The truffle-hunters in Hampshire (where they are rather common on the chalk, and especially under beech-trees) are furnished with a stout ash stick, about the size of an ordinary broom-handle, and tapered at one end to a rather stout blunt point; this point, for about three inches, is iron, in the form of an extinguisher, and firmly fitted on the wood. With this, when the dogs have indicated the whereabouts by scratching, the collector grubs them up. As they are of a solid nature, and in form and size somewhat resembling potatoes, of a dark colour, with an irregular, warty surface, they may be collected in a bag, basket, or whatever is most convenient. Having now collected and conveyed home our specimens, our next aim is either to preserve or prepare them for the table. Of course, I now allude to the thirty species which, with proper treatment, are known to be wholesome, and which are natives of our land and comparatively common.

SALTING AND PICKLING.

They may be preserved in a variety of ways for the table, the most usual being dried in the open air, strung on strings, or preserved in oil, vinegar, or brine. *Agaricus procerus*, *Boletus edulis*, and *Tuber cibarium* may be even preferred raw; while others, as the helvellas, having somewhat the consistence of leather, are decidedly improved by cooking. There can be little doubt we have poisonous species, as *Boletus luridus*, *Agaricus muscarius*, etc., care should, therefore, be taken in collecting, and all brine, vinegar, or oil in which they have been preserved should be thrown away, as it is supposed that the poison is extracted by the liquor in which they have been preserved, while the fungus, even in poisonous species, becomes a wholesome food.

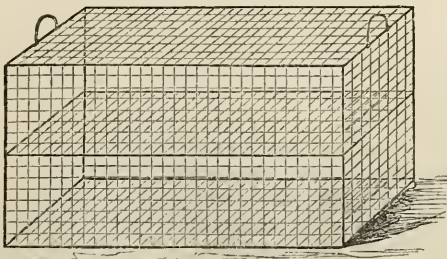
PRESERVATION OF FUNGI IN LIQUIDS.

The higher orders of fungi rarely appear in the herbarium, from the erroneous impression that it is impossible to dry them. It is quite true that many are of so delicate, fragile, and watery a nature, that it is quite impossible to dry and press them; for these there is

but one simple process, that of immersing them in bottles of a solution prepared for that purpose. There are many of these solutions in use for botanical, zoological, and anatomical purposes, but only one or two, I find, can be even moderately depended upon. Most spirits defy nearly all efforts to prevent evaporation, and they extract and destroy the colour of the plants, by which they lose their transparency. On the other hand, most solutions from a combination of chemical salts, become opaque, and form a crystalline deposit round the mouth of the jar, which, from contact with the air, gradually feeds upon the covering of the vessel; nor are acids always to be depended upon, extracting the colour and more or less destroying the most delicate and deliquescent species, especially if exposed to agitation. Where expense is not studied, one evil is, to a certain extent, remedied by throwing away the solution in which they have been preserved for about a month, and which by that time has extracted the colour, then replace it with fresh, and there is not that danger of the liquid being discoloured. A few will be found of such a solid and dry nature as to require no drying, and must be kept in a cabinet, or drawers, as they will not flatten by pressure. We now come to a large bulk of the higher orders, which, although it is not absolutely necessary to keep them in solution, it is looked upon as a laborious and difficult task to dry and press them, and when done, the sections, etc., usually taken, are but a humble apology for the whole plant. For these I can recommend the following methods as far superior to those in general use:—

DRYING FUNGI FOR THE HERBARIUM.

Procure a wire cage, such as is used by rat-catchers, about twenty-four inches long, twelve wide, and twelve deep, with a shelf of the same material in the centre, or of smaller dimensions, according to the requirements of the collector. Let the wire be sufficiently close



WIRE BASKET.

to keep out the ordinary flies, but no smaller, as we require a free ventilation; should the flies still get in, cover with a net sufficiently fine to exclude intruders. Arrange the fungi in rows with stems downwards, resting on strings crossing from side to side, and each free from its neighbour. Let this cage be suspended in the air if possible, as from a clothes' line, and in a draughty situation, as a passage between two houses; a cool, shady spot being preferable,

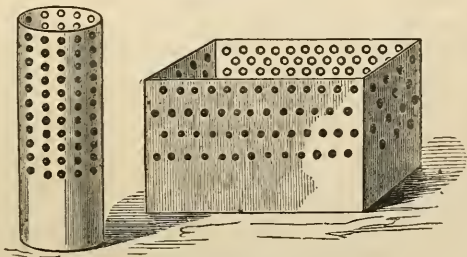
as it is the air, and not the heat, which we wish to dry them. The surface of the fungi may also be pricked with a darning needle. As soon as they commence shrivelling, or show symptoms of drying, remove them from the cage, bend down the stalk in the direction of the pileus or cap, and gently press them for twelve hours; remove them from the press, and again lay them flat in the cage, and expose them to the air till they appear sufficiently dry to bear further pressure. Again remove them, and lay them between flannel three or four times double; on this put a thin layer of cotton wadding, another layer of flannel, then a fresh layer of fungi, and repeat the layers of flannel and wadding as long as you have specimens. Put them in a box of suitable size, and subject them to pressure by placing a sheet of paper over the whole, and spreading sand lightly over the surface till the whole is covered about an inch and a half deep. Leave them for about two days, then remove them, and press between drying paper, put on perfectly hot, for twelve hours.

DRYING IN SAND AND LIME.

There is another process, not generally known, by which they may be preserved either in their natural form or flattened for the herbarium.

Take the whitest sand, nine pounds, powdered lime, one pound. Mix thoroughly and sift through a fine sieve; let the whole be well dried, and kept in an earthen vessel closed against the air and damp, ready for use.

Take tin boxes, of different sizes, perforated freely with holes large enough to admit a moderate-sized pea, on the top and on all sides, from the top to about two inches from the bottom, but no



TIN BOXES WITH HOLES.

lower. Next, take some sheets of blotting-paper, drying-paper, or flannel, line the sides of the boxes as low as the holes, but no lower; put a layer of the mixed sand and lime in the box (not heated), then place your fungi stems upwards, gently shake in the mixture till it reaches the edge of the pileus or gills, but not to cover them; now take a few strips carelessly torn from your paper or flannel, sufficiently long to cross the gills of the fungi and touch all sides of your box, like the medullary rays of an exogenous stem. This, by means of capillary attraction, will absorb the moisture from the gills of the fungi, as well as that taken up by the sand, and convey it to

the paper at the sides, where it will evaporate through the holes and escape into the atmosphere; the box should be filled with the mixture to within half an inch of the top, but do not cover the top with paper. When all the boxes are prepared, let them be stood in a slow oven, on the hob of a fireplace, the funnel of a steamer, the boiler of an engine, bath-room, or any situation where there is a regular and not too high a temperature. Take especial care that the temperature is not excessive, and that the sand is not put in hot. I have little faith in drying by pouring heated sand upon them. It is not a sudden and high temperature we require, but a low, continuous heat, and that from beneath, driving the moisture to the surface, where it will evaporate. To ascertain if they are sufficiently dry, hold a piece of clean dry glass over a perforated box at a tolerably high temperature. If moisture is still remaining it will soon be indicated by a foggy appearance on the glass. With respect to flattening, as fungi are generally of a tough, leathery texture, they may be flattened with care in an ordinary press; and I believe that their form, like that of most cryptogamic plants, may be restored by boiling water. Specimens to be collected for the herbarium should not have the roots cut off.

FUNGI ON THE STEMS OF TREES.

The parasitic and epiphytal fungi demand but few words. They are mostly on leaves of plants, and will simply require to be collected between the leaves of a folio book, and pressed by means of a string tightly bound round it. Many on the bark of trees, stems of plants, decayed wood, etc., may simply be shaved off by a chisel or sharp stiff knife, and dried in a warm room, or in the sun, and pressed if inclined to shrivel. Those found in or on the surface of liquids will require a very different treatment. When first removed from the liquid they must be placed on a pad of blotting-paper, six or eight sheets thick, and laid on a sloping board to drain, and during intervals as much must be absorbed as possible by gently pressing blotting-paper on the surface. No attempt should be made to press them till as much moisture as possible is absorbed by exposure to the air, and take especial care to keep them in a moderately cool temperature till the liquid appears absorbed; they should then, if possible, be placed on the paper intended for mounting, and paper and specimens together put between folded sheets of blotting-paper, and pressed very tenderly, and with care not to rub off the bloom. If very delicate, or of an irregular surface, they ought not to be pressed, but dried by the air, and protected on the herbarium paper by a light wooden frame surrounding them. Those that are found on bread, cheese, potatoes, and other decomposing provisions, should be dried by exposure to the air, and mounted for the herbarium in white card-board boxes with glass lids; many of the extremely delicate must at once be mounted between glass for the microscope, being the only way to preserve them. Many of the agarics and other fungi may have their delicate colours preserved by absorbing any moisture on their surface with a piece of blotting-paper, and varnishing them with a hard transparent varnish imme-

diately they are removed from the ground, or wherever they grow, and suspended with strings in the air. Where the whole plant is coloured, and several are collected, different parts of each should be varnished, as the moisture cannot evaporate through the varnish.

PRESERVING THEM WHEN MOUNTED.

Fungi are so delightful a relish to insects, that they will soon be devoured if not poisoned. Camphor so soon evaporates as to become a most expensive, troublesome, and, some say, most inefficient remedy; and its perfume becomes deleterious where in constant use, producing headache, etc., when confined in a room without ventilation. Turpentine and other essential oils become most obnoxious in glass cabinets, their resinous and greasy consistency encouraging the accumulation of dust on the specimens, the glass becomes dull and greasy, and, even if suspended in phials, are liable to be upset, and cause sad havoc in a collection neatly mounted. A solution formed of spirits of wine, corrosive sublimate, and a very small proportion of camphor, is most generally efficacious; but the use of this will vary almost as much as the plants vary themselves. In the leaf fungi the camphor must be omitted, as it forms a crystalline deposit. For many of the agarics water must be added, or the mixture will destroy the colour. With the more delicate a coat of varnish answers admirably, as it at the same time fixes them to the paper, and prevents their being rubbed off.

I use three ounces of corrosive sublimate at the time (sufficient to poison a little multitude), and have always several preparations in hand; but I should advise amateurs not to manufacture for themselves, as poisons are dangerous tools to play with.

MOUNTING.

The larger species must be glued on paper the size of the herbarium. For this purpose the best transparent glue must be obtained, broken and soaked in cold water two days before using. There can be no rule with such an extensive and variable order as this, but in some cases oil, in others mutton fat, and in others lime-water must be mixed with the glue. For the smaller, a solution of gum acacia should be used, with a little whiting and moist sugar, and four drops, to the pint, of oil of cinnamon. The most delicate may be floated on paper from gum-water, and when dry by exposure to the air, lightly coated with varnish; the same process as used for seaweeds will be useful for many fungi. Leaf fungi will form good practice and good objects for drawing or tracing, mounted between two sheets of glass; the smaller species should be mounted on small pieces of paper, and pinned on the herbarium paper; they can then be removed from time to time, as others are added. Both sides of the fungus should be shown when possible.

DOUBLE *LILIUM AURATUM*.—Mr. R. Bullen, of the Royal Botanic Garden, Glasgow, has recently had a plant of *Lilium Auratum* bearing twelve perfect flowers, and one with ten petals, forming a double row, the inner five being much broader than the outer ones; this flower has also ten stamens.

September.

SEASONABLE WORK IN THE KITCHEN GARDEN.

BY GEORGE GRAY,

Head Gardener, Ewell Castle, Surrey.



AMONGST the work requiring attention during the month of September, lifting and storing the potato crop is by no means the least important. The potato crop is this season rather light, although free from disease; and it is needful that all the care possible be taken of the produce. At the present moment the crop is in nearly as much danger as if threatened by the disease, and will be in danger so long as it remains in the ground. Owing to the drought, and the hot forcing weather experienced at intervals, the tubers completed their growth early, and are ready, as soon as the autumn rains come, to start vigorously into growth, and produce a second crop of tubers, or, as it is termed in scientific language, "supertuberate." The young tubers will be quite worthless, and those now ready for lifting will be ruined, as they will become hard and quite unfit for eating. The crops should be lifted at once, whether the haulm has died down or not. Many people are afraid of the potatoes not keeping when lifted before the haulm has died down; but there is no cause for fear, provided they are stored in a proper manner. The potatoes, if the ground is quite dry, may be taken direct to the clamp; but if moist, they should be spread out in a dark, dry shed or loft for a few days previously, to insure their being thoroughly dry; as when stored in a wet state, they rapidly deteriorate. In small places the potatoes should be stored in lofts, sheds, or cellars, if the space can be found for them, as they can be examined during the winter without difficulty; and they will also be more readily available for supplying the kitchen as required. They must have a thick covering of hay or straw to keep the air from them; and the place in which they are stored must be kept as cool as possible. If it is needful to clamp any portion of the crop, the flukes and other late keeping kinds should be stored in that way.

In digging potatoes the several sizes must be assorted, and those intended for sets next year be placed in a cool, airy place. It will not matter if they become quite green from the exposure, although it is quite unnecessary to "green" them by laying them out in the sun, as is so frequently recommended. The grand point is to keep them from growing, as the production of young shoots—which have to be removed—weakens them very much. Towards the spring, it will be an advantage to spread them out even more thinly, to insure the production of shoots so short and stubby as not to be readily removed.

The crop of cabbage for use next spring and the early part of next summer, must be planted without delay. The first or second week in the month is quite late enough, as after the middle of the month there is hardly time enough for the plants to become well

established by the winter. Cabbage plants, like many less hardy subjects, suffer severely from wet and cold weather when exposed to it before they have obtained a good root-hold. The rows should be eighteen inches apart; and the plants from fifteen to eighteen inches apart in the rows, according to the variety. But where the soil is naturally cold and wet, it is a most excellent plan to put in each row just double the number of plants required. If they all live through the winter, every other plant can in the spring be drawn out, and a second plantation formed if required. But if a portion perish, as will most likely be the case, a reserve will be available for filling up blanks. It is essential to plant firm. They succeed admirably when planted in a quarter from which the earliest crop of potatoes, or a crop of onions, has been obtained, provided it was well manured in the spring or previous autumn. There is no great objection to planting in recently manured soils; and if no plot manured in the spring is available, there must be no hesitation in manuring moderately, and digging up the soil to a considerable depth previous to putting the plants out.

Early in the month strong plants of the hardiest of the Cos and Cabbage Lettuce should be planted in a frame for use early in the spring. Prepare the frame by forming a bed nine inches in depth, with sandy soil, leaf-mould, and manure. Then plant six inches apart each way, and leave the lights off until a sharp frost is expected. Provided the plants are dry, a sharp frost will not do them much harm; but it is not prudent to expose them to it, for if caught by a frost when wet, they frequently decay in the centre. A good batch of Curled and Batavian Endive should be put with the lettuce or in a frame by itself. At the end of the month a portion of the lettuce and endive ready for use may be lifted most advantageously, and put in a frame. Both these adjuncts to the salad bowl generally suffer considerably when fully exposed to the wet and frosts, and consequently an effort should be made to afford them protection until required for use. The plants must be lifted with good balls of soil, and moved in a careful manner, so as not to bruise the leaves. They can be packed quite close together in the frame. In all cases, frames filled with lettuce and endive must be ventilated freely at all times, excepting when the weather is very wet or frosty. In fine dry weather the removal of the lights altogether will be most advantageous, as all that is needed is protection from moisture and frost, which so soon cause the hearts, when blanched, to decay.

Spinach and other crops sown in August must be thinned moderately. It is best not to thin too severely at present, but at the same time, none of the crops must be left in a sufficiently crowded state to be injured thereby. The earthing up of celery must be proceeded with as required, and advantage taken of periods of dry weather, as it is not good practice to earth up celery when wet, whether from dews or rains. There will be other matters requiring attention in the kitchen garden, but I have not felt justified in occupying more space than is necessary in directing attention to work of pressing importance at the present moment.

THE ARRANGEMENT OF THE FRUIT AND VEGETABLE GARDENS.



BOOKS and papers on gardening subjects are usually pitched in too high a key, and hence the owner of a small garden who desires information on practical matters, finds it somewhat difficult to obtain. Our readers know full well that we have never ceased to endeavour to remedy this common defect of horticultural literature, but it is quite possible we may often err in the way that others do, and when intending to offer a homely lesson, lose ourselves amongst the grandeurs of gardening. This time we trust we shall keep within bounds, for it is our intention to make a few remarks on the disposition of gardens of contracted dimensions in respect of fruit and vegetable culture.

The first proposition is that fruits and vegetables should, generally speaking, be grown in gardens or on plots quite apart from each other. Here we seem to get back to grand gardening, and it was the first proposition that suggested our introductory remarks. Now, it is not at all needful for the amateur, who has but a small garden, to conclude he cannot grow a bit of everything in it, because he can neither plant an orchard, nor devote broad tracts to asparagus, seakale, and the rest of the vegetable delicacies. The *most profitable way* is the best for him certainly, for he has not an inch of ground to waste; and the most profitable way, to begin with, is to keep the fruits and the vegetables quite apart. It is common to see in small gardens a number of crooked and perverse apple-trees dotted here and there in delightful irregularity with crops of cabbage, peas, potatoes, etc., between and beneath them. Now that is the unprofitable way, and, therefore, the wrong way. The trees are constantly injured by the disturbance and destruction of their roots, and hence their ugliness, for they are perpetually making distorted growths, and losing the shapely limbs with which they began life in the nursery. On the other hand, the vegetables grown beneath them are robbed by the trees of their due share of rain and sunshine, and as regards the double tax upon the soil of the trees and the vegetables, the end of it is that they starve each other. The tree that produces a peck of apples, when it ought to produce two or three bushels, cannot be said to have the most judicious treatment. The question arises, do the peas, potatoes, etc., grown within its shadow, and amongst its roots, pay for the defect of the fruit crop. Let everyone so circumstanced answer the question in the face of experience. I am perfectly satisfied that the attempt to get both fruit and vegetables out of the self-same plot of ground is a mistake, because it is an unprofitable mode of managing things. Although I have always condemned the common practice of planting fruit-trees in various parts of the kitchen garden, I have always had gardens so planted, and at the present time one of my most useful gardens is cumbered with apple-trees that are in the way and a nuisance; but because they are there, though not of my plant-

ing, I let them alone to shrink and die in their own time and manner.

It may be said that if we are careful and considerate, the trees need not suffer so much as to injure their health, or seriously lessen their productiveness. Now I grant this gladly, and if we could always be sure that garden work would be done in a careful and considerate manner, there might be a plausible defence set up for the violation of principle we have now before us. But we never can insure the quality of garden work from first to last. I have seen men who should have known better grubbing down amongst the roots of trees, and actually labouring hard to cut great roots away because they interfered with the planting of rhubarb, or cabbages, or something of that sort. At the very time of writing this I have observed that a man of mine, who was planting out winter greens, has dug the ground deeply to within six inches of a row of young gooseberry trees, and has actually planted large growing kales so close that their great leaves already cover the little trees, and in the course of a month or so will kill them, that is, if I allow it. When work is done on a wrong principle, we cannot expect from an unthinking workman the careful and exceptional mode of procedure needful to prevent a breakdown, and thus we come back to the proposition that fruits and vegetables should be kept apart, generally speaking.

The second proposition is that in the smallest garden the separation is easily effected. Where there's a will there's a way, and every separate case must be considered and disposed of on its merits.

Suppose for the sake of a hypothetical solution of the difficulty, that we put all the fruits at one end, and all the vegetables at the other, and make it a law as severe as that of the Medes and Persians that neither shall invade the other's department. That we will say is solution No. 1. In working it out, we shall plant the trees in rows at a sufficient distance apart with rows of black currants and raspberries between, for these fruits thrive in partial shade. The boundary lines of the fruit plot we shall plant with red and white currants and gooseberries, for these require more air and light than black currants and raspberries. This ground is not to be dug, mind, for digging is a destructive business where fruits of any kind are growing. If it be said we have not provided for the strawberries, the answer is that they travel about, and require a new plot every three years at least, and an open spot amongst the vegetables will suit them admirably. The wise way is to plant a row or two of strong runners every year, and every year destroy a row or two of the oldest.

But as there are several ways of killing a dog, so there are several ways of saving the fruit-trees. Instead of planting them all at one end, we may plant them all round the boundary. How about the apples that hang over the road? Think of that in time. If they are likely to be safe, plant the trees near the roadway to hang over and beautify it, and also to utilize the sunshine there which you obtain for nothing, for it is of sunshine chiefly that fruits are made. But on the inner side of the supposed belt of fruit-trees,

you must have some protection to prevent the happy peasant who may chance to dig the ground from going too near to the currant and gooseberry trees, which we will suppose form the inner boundary next the vegetable plot. Now a safe and sure, and easy and convenient way of disposing of this difficulty is to construct a walk, and the end of it will be a combined vegetable and fruit-garden, with none of the absurdity of trees everywhere in the way, and always exposed to insult and injury. This is solution No. 2.

It is time now to offer a third proposition. Employ as many fruits as possible for ornamental purposes, and thus utilize for the good of the household the sunshine of the lawn, the croquet ground, the entrance-court, and the shrubbery. We are now upon delicate ground, and gentility might stop the way. It must be repeated, therefore, that every separate case must be considered on its merits. Let us, therefore, go on, and leave it to the reader to judge if our proposals are in any way applicable to his own particular case.

It must be understood at starting, that while some kinds of fruits are decidedly ornamental, others are as decidedly not so. All the most valuable household fruits, apples, pears, cherries, and plums, are decidedly ornamental, and adapted to embellish the lawn and the shrubbery, and give shade to the summer-house and the croquet ground. It is not long since we published in the "Garden Oracle" a list of the most ornamental varieties of these fruits. There are several kinds not usually regarded as proper to the fruit-garden that would be found both useful and ornamental, as for example, the Siberian crab, which is one of the most beautiful of trees, and its pretty fruit makes a good preserve. All the varieties of nuts are handsome, and make nice lovers' walks. For particular positions, the Purple-leaved Filbert is well adapted, the leafage being of a rich bronzy green colour, and the nuts of excellent quality. Those who wish for ornamental trees that will contribute to the comfort of the household, may easily find them, and we are quite sure no one will dispute the proposition that decorative horticulture might derive considerable aid from the trees and shrubs that belong technically to the fruit-garden.

As a rule, bush fruits are not ornamental. The raspberry, and black currant, and gooseberry are the most tolerable in respect of appearance, and may be allowed to come within view of the walks in the remoter parts of the pleasure-garden. The black currant makes a good dividing fence, and as it need not be pruned at all, soon gets up and becomes a dense leafy screen, and as it comes into leaf early, and sheds its leaves late, it is, for practical purposes, almost an evergreen. The red and white currants are the ugliest of all fruit-trees, and really ought not to be taken into any compromise such as other bush fruits are worthy of. They must have an open sunny spot, and it is worthy of observation that they endure punishment at the root better than any other trees in the world, and so they may be taken into a compromise of another sort, and be planted on the boundaries of open plots in the kitchen-garden.

S. H.

THE GARDEN GUIDE FOR SEPTEMBER.

Next him September marched ecke on foote :
 Yet was he heavy laden with the spoyle
 Of harvests riches, which he made his boot,
 And him enricht with bounty of the soyle :
 In his one hand, as fit for harvests toyle,
 He held a knife-hook ; and in th' other hand
 A Pair of Waights, with which he did assoyle
 Both more and lesse, where it in doubt did stand,
 And equall gave to each as Iustice duly scann'd.

SPENSEE.



THE border flowers which flower during the month, are few in number, as compared with those in bloom during the three preceding ; nevertheless, there are a number of really good things, which materially contribute to the beauty of the flower-garden during the month. The best of these are the Thrifts, Campanulas, Fumitories, Delphiniums, Day Lilies, Linarias, Polygonums, Potentillas, Veronicas, Hollyhocks, and Perennial Phloxes.

The garden work of September does not differ materially from that advised for last month, and does not, therefore, require any special comment. We would, however, suggest the desirability of not leaving work which may be done now until next month.

FLOWER GARDEN.—No time must be lost in planting out layers and pipings of Carnations, Pinks, and Picotees after they are well rooted. Select an open situation, and dig the ground up deeply before planting. Divide and replant Daisies and Polyanthus for spring bedding, if not already done. Support Dahlias with stakes as it becomes necessary, and protect from earwigs by setting traps. Fill a few small pots with moss, and turn them bottom upwards upon the stakes used in supporting the branches. Seedling herbaceous plants ought to be strong by this time, and ready for planting out ; but there is yet time for sowing seed, if still undone. Transplant evergreens, and propagate either by cuttings or layers. Turf laid now will become nicely established by winter. Ivy and box edgings may also be made. Finish the propagation of the stock of bedding plants as quickly as possible.

GREENHOUSE. — The plants available for decorative purposes during the month include *Abutilon vexillarium*, *Erica Marnockiana*, *E. McNabiana*, *Erythrina crista galli*, *E. Marie Belanger*, *Hydrangeas*, *Latana Boule de Neige*, *L. elegantissima*, *Lapageria rosea*, *Rochea falcata*, *Sedum fabarium*, *Trachelium cœruleum*, *T. album*, *Plumbago capensis*, and lilies. Plants of tender constitution, such as *Heaths*, *Epacris*, and *Chorozemas*, must soon have the shelter of the greenhouse or pit. Give the structures intended for their winter quarters a thorough cleansing, and whitewash the walls with hot lime previously to bringing the plants indoors. Pay particular attention to the roots with respect to moisture ; for, whilst guarding against keeping them too wet, see that they do not suffer from drought. Shift on *Cinerarias*, *Calceolarias*, and *Primulas*, as the case demands. Those intended for early flowering must be put in

their flowering-pots at once, if they have not yet received their final shift. Place Fuchsias, as they go out of flower, outside for a week or ten days, to insure the wood being well matured before packing them away for the winter.

STOVE.—It may be assumed that nearly all the summer-flowering occupants of this structure have now completed their growth, and require more light and air, and less warmth than they have been receiving lately. They should, therefore, be placed in the coolest end of the house, and winter-flowering subjects, such as Gesneras, Justicias, Poinsettias, Thysacanthus, and Euphorbias, must have every encouragement to acquire strength before the light declines too much. Orchidaceous plants must also have free exposure to the light to effect a thorough maturation of the newly-made pseudo-bulbs. Withhold the syringe after the beginning of the month, unless in exceptional cases, and maintain the necessary atmospheric humidity by sprinkling the floors.

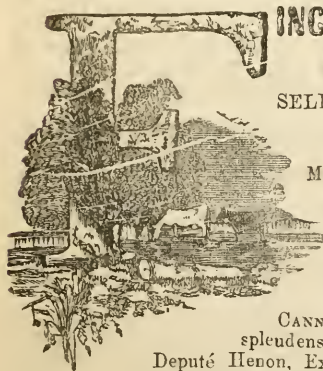
KITCHEN GARDEN.—To avoid loss of time thin the winter crop of turnips to the proper distance apart as soon as necessary, and the spinach also, if too thick. Hoe the ground between the rows to destroy every vestige of weed before it has time to seed, and thus render it unnecessary to tread the ground when in a soft state from the autumn rains. Plant out a good breadth of the Green, Curled, and Broad-leaved Batavian Endive, and Brown Cos and Drumhead Cabbage Lettuce for the winter. Tie up for blanching those sufficiently advanced. Take up and store Potatoes, and the Onions not sufficiently matured for taking up last month. Make a raised bed for the reception of a frame to receive the Cauliflower plants to stand over the winter. Hand-lights and ground vineries are invaluable adjuncts to the kitchen-garden for protecting young plants of various crops, and for preserving Lettuce, Endive, and many other things after they have reached maturity. Plant out the main crop of Cabbage for spring use at a distance of two feet apart, and insert a strong Colewort plant between each four, to draw during the winter. Sow Chervil, Corn Salad, and Radishes for a late supply. Earth up Celery and Leeks, selecting a dry day for that purpose.

FRUIT GARDEN.—Expose the fruit on wall-trees to the light by removing the leaves which overshadow it. Early Apples and Pears must be gathered as soon as the stalk parts readily from the tree, and placed in the fruit-room until fit for the table. When allowed to remain on the trees until ready for consumption, they lose their fine brisk flavour, and eat flat. Pyramidal and cordon trees that are making a strong growth require root-pruning; the early part of next month is the best time for performing that operation. When done early they make fresh roots, and become re-established before the winter. Fresh plantations of Strawberries may still be made with a considerable chance of success, but such heavy crops of fruit must not be expected as from those planted early last month.

PITS AND FRAMES.—Pot off intermediate stocks in good turfy loam, mixed with a liberal proportion of rotten manure and leaf-mould. Sow Mignonette for late work, and thin that already up to

about five plants to each five or six-inch pot. Give abundance of air to cuttings of bedding plants that are rooted, and draw the lights off altogether when thoroughly established.

FORCING.—Pines swelling their fruit must have liberal encouragement; the temperature should range from 80° to 90°, with a bottom-heat of 85°. Reduce the temperature, and ventilate somewhat liberally, even if extra fire-heat becomes necessary. Give all the air possible to Vines from which the crop has been gathered, and keep the atmosphere dry in houses in which the grapes are hanging. Those just colouring also require plenty of air, even if artificial warmth is required to maintain the proper temperature. Young Cucumber plants must be raised at once, where a supply is required throughout the winter. Melons ripening require extra warmth to finish them off quickly, and prevent them being insipid and flavourless.



INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

SELECTIONS OF BEDDING PLANTS FOR
1875.

AGERATUMS.—Blue Gem, Imperial Dwarf, Mexicanum.

BOUVARDIAS.—Angustifolia, scarlet; Vreelandi, white; Hogarth, scarlet.

CALCEOLARIAS.—Amplexicaule (for large beds), Aurea floribunda, Coccinea floribunda, Crimson Queen, Golden Bedder, Golden Fleece, Golden Gem, Pillar of Gold, Prince of Orange.

CANNAS.—Alfred Dumineil, Annei discolor, Binorelli splendens, Chatei discolor, Chatei grandis, Compacta, Deputé Henon, Expansa, Gigantea floribunda, Henri Vilmorin, Jean Sisley, Nigricans, Picturata fastuosa, Purpurea spectabile,

Warszewicz Major.

COLEUS.—Emperor Napoleon, Verschaffelti, Verschaffelti splendens.

DAHLIAS.—Alba floribunda nana, Captain Ingram, Conflagration, Decoration, Gem of the Dwarfs, Jubilee, King of the Dwarfs, Little Bobby, Little Gem, Pretty Polly, Pluton, Prince of Wales, Queen Victoria, Rising Sun, White Bedder.

FUCHSIAS.—*Light flowers*: Constellation, Lizzie Hexham, King of the Doubles, Rifleman (double), Norfolk Giant, First of the Day, Tower of London, and Mr. Lyndoe. *Dark flowers*: Wiltshire Lass, Marginata, Minnie Banks, Prince Alfred, Arabella, White Perfection, Alba coccinea, Evening Star, Conspicua, Emperor of the Fuchsias, Vainqueur de Puebla, and Mrs. Ballantine.

HELIOTROPICUMS.—Cheshire Hero, Etoile de Marseilles, Jersey Beauty, La Favorite, Miss Nightingale, Modèle, Mons. Hamaitre, Surpasse Gnascioi.

LANTANAS.—Adolphe Hwass, Consolation, Delicatissima, Distinction, Don Calmet, Empereur des Français, Fillioni, Gloire de Mazarques, Louis Rœmpier, MacMahon, Madame Bruant, Mons. Rougier, Roi des Rougés, Victoire.

LOBELIAS.—*Speciosa type*: Blue King, Brilliant, Cobalt Blue, Drusilla, Mazarine Gem, Porcelain Brilliant, Speciosa, White Perfection. *Pumila type*: Alba cœrulea, Duchess of Edinburgh, Pumila grandiflora. *Intermediate type*: Imperial, Ne Plus Ultra, Omen, Pink Cornelian, Purple Prince.

PANSIES.—Bedfont Yellow, Blue King, Cliveden Blue, Cliveden Purple, Cliveden Yellow, Dean's White Bedder, Great Eastern, Mrs. Shirley Hibberd, Queen of Scots, Sandbeck Gem, Sunshine, Ware's Cloth of Gold.

September.

PELARGONIUMS, ZONALS (NOSEGAYS INCLUDED).—Scarlet : Amabilis, Charley Casbon, Chunder Sen, Cannell's Dwarf, Corsair, Duke of Edinburgh, Flamingo, George Miles, Jean Sisley, Omega, Orbiculata, Payne's Perpetual, Rev. C. P. Peach, Shakespeare, Star of Fire, Velocipede, Vesuvius, Warrior. **Orange and Salmon :** Excellent, Hibberd's Orange Nosegay, Harkaway, H. W. Longfellow, Scarlet Dwarf, Soleil. **Rose and Pink tinted :** Amaranth, Amy Robsart, Beauty of Lee, Bella, Delight, Master Christine, Feast of Roses, Miss Rose Peach, Mrs. J. Pottle, Mrs. Upton, Welbeck Nosegay. **Crimson and Purple tinted :** Bayard, Charles Dickens, Crimson King, Douglas Pearson, Diana, David Garrick, Geant des Batailles, Heartsease, Lord Belper, Pioneer, Lady Kirkland, Lady Palmerston, Marathon, Mrs. Hole, Mrs. Mellow, Undine, Violet Hill Nosegay, Sparkler. **Cerise :** Cherry Lips, Lucius, Magnet, Crystal Palace Gem, Troubadour. **Salmon Shades :** Gloire de Corbeny, Gloire de St. Louis, Madame Day, Sensation. **White :** Madame Vaucher, White Princess, White Clipper.

IVY LEAF.—Butterfly, Cassidy, Favonia, Gem of the Season, Lady Edith, Romance, Treasure.

GOLDEN ZONALS.—Allan-a-Dale, Edward Richard Benyon, Fair Emily, Lady Sheffield, Leander, Louisa Smith, Mrs. Dunnett, Mrs. Pollock, Peter Greive, Prince Arthur, Prince of Wales, Queen of Spain, Sir Robert Napier, Victoria Regina.

SILVER ZONALS.—Caroline Longfield, Eva Fish, Fair Rosamond, Italia Unita, Lass o' Gowrie, Mysterious Knight, Silver Flute, The Graphic.

BRONZE ZONALS.—Attraction, Black Douglas, Bronze Queen, Countess of Kellie, Crown Prince, Imperatrice Eugenie, Marechal MacMahon, Mrs. Lowndes, Princess of Wales, Sŷhil, the Moor, W. R. Morris.

GOLDEN-LAVED.—Creed's Seedling, Crystal Palace Gem, Golden Banner, Golden Harkaway, Little Golden Christine, Robert Fish, Yellow Gem.

VARIEGATED.—Avalanche, Bijou, Bridal Bouquet, Flower of Spring, Miss Kingsbury, Princess Alexandra, Snowdrop.

PETUNIAS.—Attraction, Ariel, Butterfly, Crispinus, Imperial, King of Crimson, La Neige, Mont Blanc, Perdita, Miss Earle, Spitfire, Shrubland Rose.

TROPEOLUMS.—Advancer, Compactum coccineum Major, Coronet, Perfection, Yellow Dwarf, Minnie Warren, The Moor.

VERBENAS.—Aristo Improved, Basilisk, Crimson King, Ganymede, Hercules, Iona, Lavender Queen, Mauve Queen, Maonetti, Melindris splendens, Nemesis, Oxonian, Polly Perkins, Pomerania, Purple King, Sportsman, White Queen.

VIOLAS.—Blue Bell, Corisande, Enchantress, Magnificent, Lothair, Lutea Major, Perfection, Queen Victoria.

CARPET BEDDERS.—*With dark foliage :* Alternanthera amœna spectabile, A. amabilis latifolia (magnifica), A. paronychioides major, A. versicolor grandis, Amaranthus melancholicus ruber, Iresine Lindenii. *Silvery foliage :* Antennaria tomentosa, Centaurea argentea plumosa, C. Clementei, C. ragusina compacta, Cineraria ceratophylla, C. maritima compacta, Cerastium tomentosum, Dactylis elegantissima, Leucophyton Brownii, Veronica incana. *Golden foliage :* Abutilon Thompsonii, Coprosma Baueriana variegata, Lonicera reticulata aurea, Mesembryanthemum cordifolium variegatum, Pyrethrum Golden Feather, Sedum acre elegans, Stellaria graminea aurea, Thymus citriodora n arginata aurea, T. the Golden Fleece. *Succulents :* Echeveria pumila, E. metallica, E. metallica glauca, E. secunda glauca, Sempervivum calcaratum, S. Californicum, S. Donckelaarii, S. tabulæforme, Sedum glaucum, S. acre elegans. *Blue Foliage :* Klenia repens.

HORTICULTURAL AFFAIRS.



ROYAL BOTANIC SOCIETY OF LONDON.—The thirty-fifth anniversary meeting of this Society was held recently at the Society's House, Inner Circle, Regent's Park ; Sir Walter Stirling in the chair. Mr. Sowerby, the secretary, read the annual report, from which it appeared that the number of new subscribers who had joined the Society during the year was in excess of that of last year, and also much above the average. The numerical strength of the Society had been fully maintained. The exhibition of flowers and the evening *fête* had been most successful, and were gaining in popularity. The new range of greenhouses for the preservation of plants relating to the arts,

manufactures, and domestic economy, commenced last year, had been completed at a considerable cost, and thus extended facilities had been offered to teachers, students, and others seeking information relating to the vegetable kingdom. Free admissions to study had been issued to 26 artists, 318 to professors and students, and 31,500 cut specimens distributed to them. Several improvements had been made in the gardens, and many new and interesting plants added to the collection. The Chairman congratulated the Fellows upon the satisfactory report presented, and the report was then adopted. His Serene Highness the Duke of Teck was elected president for the year. Votes of thanks were passed to his Serene Highness the Duke of Teck, G.C.B., and her Royal Highness the Duchess of Teck, for the interest they take in the Society; and similar votes to the council, the committees, the executive, and the chairman.

GIBSON TESTIMONIAL.—Mr. Gibson, who for many years occupied the post of superintendent of Battersea Park, and latterly of Hyde Park, has for nearly twelve months been suffering from a severe attack of paralysis. His horticultural and other friends have, in consequence, determined to present him with a testimonial, as a practical proof of their appreciation of his manifold labours in furthering the progress of horticultural science, and to assist in defraying a part, at least, of the expenses incidental to a lengthy illness. Mr Gibson, it will be remembered, introduced carpet bedding and subtropical gardening to English gardens, and by the examples of both styles of embellishing the flower gardens in the parks under his charge, has exercised a most healthy influence on the public taste. Contributions to the testimonial fund may be sent to Mr. Thomas Moore, curator, Chelsea Botanic Gardens, S.W.; and we trust our readers will show their sympathy with Mr. Gibson by contributing to the fund according to their ability.

THE PRINCIPAL BEDDING DISPLAYS IN AND NEAR THE METROPOLIS are now in splendid condition, and everywhere what is called "carpet" bedding is the predominant feature. The grounds of the Crystal Palace, the parterres of Battersea, Hyde, and Victoria Parks are ablaze with colour, and, generally speaking, the style of decoration is completely altered from that which prevailed only ten years ago. Those who are interested in bedding effects should see the London parks and the great garden at Sydenham as soon as possible.

THE PHYLLOXERA, OR VINE PEST.—A recent issue of the *London Gazette* contains the following notification: "The Board of Trade have received from the Secretary of State for Foreign Affairs a copy of a French law, promulgated on the 25th ult., instituting a prize of 300,000 francs (about £12,000), to which may be added subscriptions from other sources, for the discovery of an efficacious and economical means of destroying the phylloxera, or of preventing its ravages. A commission nominated by the Minister of Agriculture and Commerce will determine the conditions of competition and the award of the prize." The prolonged discussions in the Académie des Sciences, and the numerous experiments and observations on the invasions of phylloxera, resolve themselves into a recommendation by M. Dumas, to "stamp it out." It is urged to be necessary to insure the destruction of every diseased vine and those about it, and to poison the ground. It is further urged that the planting of new vines, of French races, should be made only in land susceptible of being flooded, or in lands naturally or artificially sandy.

THE SECOND HORTICULTURAL EXHIBITION AT VIENNA this year is to take place from October 3 to 7, and will be exclusively limited to fresh fruits and vegetables. It will be held in the Blumen Sälen, No. 12, Parkring. Foreigners will be allowed to compete, but they must signify their intention, either in writing or verbally, a week previous, at the offices of the K. K. Gartenbau, Gesellschaft.

THE POMOLOGICAL SOCIETY OF FRANCE will hold its seventeenth annual meeting at Angers from September 28 to October 3. An exhibition of fruits will be held, open to all nations, and a congress of pomologists will hold its sittings at the same time.

THE CENTRAL HORTICULTURAL SOCIETY OF FRANCE will hold an exhibition of fruits and flowers at their rooms, 84, Rue du Grenelle Saint Germain Paris, from October 10 to 14.

A NOBLE ORCHARD.—The orchard of William Meek, of San Lorenzo, California, covers two hundred and sixty acres. He has 27,000 almond-trees, 226,000 currant-bushes, 7,200 cherry-trees, 3000 p'ums and prunes, besides large numbers of the best varieties of apples, pears, paches, apricots, etc. He is also experimenting with oranges and lemons.

September.

FRUIT SHOW AT THE CRYSTAL PALACE.—The schedule of prizes offered for competition at the forthcoming exhibition of fruit, on 8th, 9th, and 10th inst., has recently been issued, and contains classes for Gladioli and vegetables, in addition to the usual prizes for fruit. The classes for vegetables are open to cottagers only; but, as the prizes are comparatively liberal, a good display of esculents will no doubt be the result. The Honey Fair to be held in connection with the fruit show promises to be a most interesting event, as something like £100 is offered for bee-furniture and honey.

ACCIDENTAL NATURALIZATION OF PLANTS.—It is well known that many of our most pernicious weeds are foreign plants that have been accidentally introduced into this country, where they have become naturalized, and have spread in some cases far more rapidly than on their "native heath." M. Balansa relates two striking cases of this kind in his account of New Caledonia, the island to which so many of the French Communists have been transported. In the first instance, about four years ago, a gendarme, who was transferred to this island from Otaheite, brought with him a bolster filled with the feathery seeds of *Asclepias curassavica*. Having occasion to wash the tick-cover, he opened the bolster at the Pont des Français, when some of the seeds were carried off by the wind, and the plant has since then increased to such an extent as to seriously interfere with cultivation, its roots running under ground to considerable distances, and sending up shoots in all directions, so that it is difficult to eradicate it. In the second case, M. Balansa relates that, a few years ago, some boxes arrived from Sydney containing various articles packed in European hay. This was thrown out and left on the ground where the boxes were unpacked. In the following year a new graminaceous plant was observed growing plentifully where the hay-packing had been left. This proved to be common Couch-grass (*Triticum repens*), and it has spread so rapidly that M. Balansa states that it is already exterminating the native grasses.

TO CORRESPONDENTS.

STELLARIA GRAMINEA AUREA.—*An Old Subscriber, Bathampton.*—This golden bedder cannot, so far as we are aware, be raised from seed. That, however, is a matter of small importance, for it can be propagated most readily from cuttings. It retains its rich colouring throughout the summer. It is now very cheap, strong plants being obtainable for half a crown or so per dozen.

SEEDLING CYCLAMENS.—*Flora Macdonald, Penarth.*—Pot the seedlings off singly in small pots, place in a frame, keep them rather close, and supply moderately with water. Use a light rich compost. In September remove to a warm corner of the greenhouse, and with ordinary attention they will bloom towards the end of the winter. Seedling cyclamens must not be dried off the first year.

H. C.—One of the principal points to insure a supply of flowers is to place the plant in a sunny position after it has made its growth, to afford the young wood an opportunity of being thoroughly matured.

REMOVING SASHES FROM ORCHARD HOUSES.—*A Young Gardener.*—As the sashes are moveable, and you have gathered your crop, by all means remove them. It will save an immense amount of labour in syringing, and the trees will receive the benefit of every shower and the heavy dews which we generally have through this and the next month. Trees that cannot be uncovered after the crop is gathered generally become so much infested with red-spider at this season that the foliage falls off before it is properly ripened, and consequently before it has fully performed all its proper functions. When this happens, the flower-buds for next season are not properly formed, and many of them fall off directly the trees begin to move in the spring. Good crops of fruit can be grown on trees that are never uncovered; but it is difficult to obtain such fine wood and fruit as from houses that have moveable sashes, which are taken off yearly. In cold, wet seasons, it is as well to let the lights remain on; the wood ripens in that case better, and the borders do not become saturated with heavy rains. In ordinary seasons the autumnal rains are better for the trees than artificial watering. We do not advise keeping the lights off until a few weeks before starting the house, because exposing the trees to severe frosts through the winter, after their having been kept in a high artificial temperature all the summer, does them no good.

FUCHSIA-BUDS DROPPING.—*Anxious Inquirer.*—The plants have quite exhausted the soil in which they are growing, therefore shift the young and middling-sized plants at once into a mixture consisting of fibrous loam, leaf-mould, rotten dung, and silver sand; after a few weeks' growth they will bloom finely through the latter end of the autumn. Try a little guano water, mixed at the rate of half an ounce to the gallon, on the old plants. If they are too far gone, and it fails to have a salutary effect, set them out of doors in a shady position to ripen their wood.

CALCÉOLARIA CUTTINGS.—*Novice.*—Calceolarias bedded out have made but little growth anywhere this season, and we expect many will find great difficulty in getting up their usual stock of cuttings. We would advise you to give your bed a good mulch of half-rotten dung; or if it is situated in too prominent a position for you to do this, cover it instead with the same thickness of cocoa-nut refuse. This will keep the roots cool, and encourage the production of young shoots. We need scarcely say that a good soaking of water now and then will be of service, and if slightly flavoured with manure its advantage will be enhanced. A syringe or sprinkle overhead with clear water between the intervals will all tend towards the same end.

SUMMER MANAGEMENT OF DAHLIAS.—*W. H. S., Yorkshire.*—Dahlias should have only one stem each, and that staked in good time. If the plants grow very busily, thin away a portion of the shoots; liquid manure once a week, not too strong, will do them immense good, and, while growing, they will take as much moisture as you like to give them. If a regular system of watering is once begun you must go on all through the season, except during wet weather, for watering brings the roots near the surface, and the plants suffer if supplies are stopped. We put a good spadeful of rotten dung under every dahlia to draw the roots down, and obviate the need of frequent watering. If the plants are troubled with red-spider, dust them with sulphur, and then drench them well overhead—the red-spider cannot stand sulphur and moisture together. A dry leaf and a warm berth are the delights of this pest. Dahlia roots should be stored in a place free from frost and damp, but not so dry as to shrivel them. They should not be taken up until the frosts have destroyed the stems, and, to promote the ripening of the tubers, the plants should have very little water towards the end of the season. The best way of storing them is to lay them in wicker baskets, and cover with short dry hay, and place the baskets in an airy loft.

SPIRÆA PALMATA.—*An Old Subscriber, Bathampton.*—The plant is, no doubt, wrong at the roots. We would advise you to shift it into a larger pot as soon as it has done flowering, and in so doing remove a little of the old soil if it will come away without disturbing the roots. If the pot is well filled with roots, no attempt should be made to remove any portion of the soil. The pot into which it is shifted should be two sizes larger than the one it now occupies. Use a mixture of turfy loam and well rotted manure, and when the repotting is completed place it in a shady position, such as on the north side of a wall, fence, or hedge. Supply it liberally with water, until the leaves die down, and even then the soil must be kept moist, for like other marsh plants it must have moisture during the winter as well as in the summer. Many amateurs fail in growing it successfully through their drying it off when at rest, in precisely the same manner as they would bulbous plants. When the leaves have all died down, remove to a cold frame, because when left out-of-doors there is a danger of the frost splitting the pot and injuring the roots. It may be protected with a good thickness of dry leaves or litter, but it is preferable to winter it in a cold frame. As it commences to grow in the spring, increase the supply of water, and when in full growth give it an abundance, and about twice a week apply liquid manure, prepared by steeping cow-dung and soot in rain water. It should be again shifted after it has done flowering. By shifting at this stage the pots are well-filled with roots by the autumn, and in the spring they are in grand condition for starting into a vigorous growth. By the adoption of the system here described, it will be possible to produce specimens upwards of five feet in height, six feet through, and furnished with fifty flower heads, each of which will be of immense size. Very few people are aware of the capabilities of this grand plant, and a fresh-looking plant, two or three feet in height, and furnished with four or five flower heads, is regarded as quite a triumph of cultural skill, but these are mere pigmies when compared with specimens of the dimensions here mentioned.

NAME OF PLANTS.—*Osmunda*.—The plant, of which we received a specimen, is *Fedia dentata*, or *Valeriana dentata*.—*M. T.*—The specimen is not sufficient for identification.—*Rhubarb Stott's Monarch*, *E. N. Davis*, *Rye*.—Roots of *Rhubarb Stott's Monarch* can be obtained of Messrs. Stuart and Mein, Kelso, N.B.

Mrs. L. P.—The plant, judging from the dried sample received, appears to be quite right.

FRUIT TREES FOR WALLS. — The south wall will afford accommodation for thirteen trees, and we would advise its being planted with 5 Peaches, 4 Nectarines, 2 Cherries, and 2 Plums. The varieties most suitable of the respective fruits are, Peaches—one tree each—of *Early Louise*, *Bellegarde*, *Royal George*, *Noblesse* and *Barrington*. Nectarines, one tree each, *Hardwick Seedling*, *Ebruge*, *Violette Hative*, and *Prince of Wales*. By planting the foregoing varieties, a succession of first-class fruit will be insured. The earliest Cherries and Plums only should be planted. Of the cherries, one tree each of *May Duke* and *Frogmore Bigarreau* should be planted; and of the plums, one tree each of *Bonne Bouche*, a fine variety of the Green Gage type, sent out a few years since by Mr. C. Turner, Royal Nurseries, Slough, and *Royal Hative*. The west wall may be devoted to Apricots, Plums, and the choicer kind of Pears. The wall will afford accommodation for fifteen trees, and a good arrangement would be to plant the wall as follows:—Apricots, *Large Early*, *Moorpark* and *Turkey*. Plums, *Kirk's* and *Jefferson's*. Pears, *Alexander Bivort*, *Beurre Bosc*, *Beurre de Capiaumont*, *Beurre Rance*, *Althorp Crassane*, *Glout Morceau*, *Knight's Monarch*, *Ne Plus Meuris*, *Passe Colmar*, and *Winter Nelis*. One tree of each of the varieties mentioned should be planted.

ROSE TREES.—*G. E. N.*—It will be perfectly safe to lift the rose-trees in September, but we do not advise lifting before October. If carefully lifted and replanted quickly afterwards, you will have better flowers next year.—*A. H. G.*—The green rose is worthless; the only reasonable way to deal with it is to put it on the rubbish heap.

GERANIUM LEAVES.—*B. S.*—Your plants appear to be affected with the disease that has so sadly plagued M. Sisley, of Lyons. We advise you to have the plants repotted at once, the compost to consist of poor loam, three parts to one part sharp sand, and not a particle of manure. A fortnight after potting cut them back moderately.

TRADE CATALOGUES.

J. CARTER & CO., 237 & 238, HIGH HOLBORN, W.C.—*Catalogue of Hyacinths, Tulips, and other Dutch Bulbs.*

A. M. C. JONGKINDT CONINCK, TOTTENHAM NURSERIES, DEDEMSVAART, NEAR ZWOLLE, NETHERLANDS.—*Wholesale Trade List of Nursery Stock.*

W. CUTBUSH & SON, HIGHGATE, LONDON, N.—*Bulb Catalogue.*

FRANCIS AND ARTHUR DICKSON & SONS, 106, EASTGATE STREET, CHESTER.—*Catalogue of Dutch and other Flower Roots.*

DICKSON & ROBINSON, 23, MARKET PLACE, MANCHESTER.—*Catalogue of Hyacinths, Tulips, Narcissus, Crocus, etc.*

DOWNIE, LAIRD, & LAING, FOREST HILL, LONDON, E.C., AND EDINBURGH.—*Descriptive Catalogue of Bulbous Flower Roots and Spring-Flowering Plants.*

W. HENDERSON, 86, HAMILTON STREET, BIRKENHEAD.—*Select Catalogue of Dutch and other Flower Roots.*

LAWSON SEED AND NURSERY COMPANY, SOUTHWARK STREET, LONDON, S.E. AND 1, GEORGE IV. BRIDGE, EDINBURGH.—*Catalogue of Dutch Flower Roots, etc.*

ROBERT PARKER, EXOTIC NURSERY, Tooting, Surrey.—*Catalogue of Alpine and Herbaceous Plants, Bulbous Roots, Fruit Trees, etc.*

WILLIAM PAUL, WALTHAM CROSS, LONDON, N.—*Bulb Catalogue.*

ANT, ROOZEN & SON, OVERWEEN, NEAR HAARLEM, HOLLAND.—*Catalogue of Hyacinths, Tulips, Crocus, and other Dutch and Cape Bulbs.*

SUTTON & SONS, READING—*Autumn Catalogue of Bulbs.*

JAMES VEITCH & SONS, ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSBA, S.W.—*Catalogue of Hyacinths and other Bulbous Roots.*

B. S. WILLIAMS, VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, LONDON, N.—*General Bulb Catalogue, Fruit Trees, Roses, etc.*





CAMELLIA REPIDITA.

LASIANDRAS.

(With Coloured Illustration of *Lasiandra lepidota*.)

BY GEORGE GORDON.



THE lovely Melastomaceous plant forming the subject of the coloured plate in this month's number of the FLORAL WORLD is well deserving of the honourable place assigned it, for it belongs to a class of plants at present but sparingly represented in our plant-houses, and there is good reason for supposing that it will succeed in a much lower temperature than any of its congeners. The best known Melastomad in English gardens is, perhaps, our old friend *Pleroma elegans*, which is now and again presented in grand condition at provincial exhibitions held in July and August; but, strange to say, seldom presented in good condition at the metropolitan exhibitions, for reasons it is not necessary to discuss at the present moment. Other closely allied, but less well-known subjects are *Lasiandra macrantha*, and *Monochætum ensiferum*, which, under a proper system of culture, are useful for winter decoration. The *Lasiandra* requires a stove temperature, and the others a warm greenhouse, or intermediate plant-house, to insure success. But *Lasiandra lepidota* will most probably succeed in a cool house, in company with azaleas and camellias, and as its flowers are wondrously attractive, and freely produced, it may be regarded as a decided acquisition. It appears to have been first sent to M. Linden, in whose establishment at Ghent it has recently flowered, from the province of Antioquia, New Granada. It is plentiful in the cold regions of the Cordillera of the Andes, and isolated groups have been found, even in the most exposed part of the terrible snow plains of Zumbador and Almorzadero, in the province of Pampluna, Santander, where men and horses frequently perish in the fearful tornadoes with which the country is visited. Indeed, so violent are the storms to which the plants are at times exposed, that the bark is torn off the stems. There is, consequently, good grounds for believing that it will require no more shelter in this country than that of an ordinary greenhouse or cool plant-house. It forms a bushy shrub, furnished with slender branches; the leaves are ovate, and of a rich deep green; the flowers, as shown in the accompanying illustration, are large, and of a bright reddish carmine, with pure white centre. A well-flowered specimen has, therefore, a most beautiful and attractive appearance.

With the exception that it will grow freely in a lower temperature than the *Pleromas*, *Monochætums*, and the *Lasiandras* at present in English collections, it will, no doubt, succeed under similar conditions. The species belonging to those genera are propagated with but little trouble by means of the tops of the young shoots taken off, prepared, and inserted in cutting pots in the usual way, and assisted with a genial bottom-heat. When nicely rooted,

they require potting off separately, and after arriving at this stage, they must be shifted on, as more root space is required. The young shoots will require stopping a few times during the earlier stages of growth, to insure bushy specimens, but the stopping must not be excessive, or the plants will be filled with a mass of small weakly shoots. As the shoots are rather slender, a few stakes will be required to support and regulate them. The *Lasiandras* are rather more erect in growth, and, as a rule, simply require to be stopped moderately when the foundation of the plant is being laid; but afterwards the shoots must be pinched with great caution, or there will be very few flowers. There are two distinct forms of *Lasiandra macrantha*, and the one known as "*floribunda*" is decidedly the best, as it flowers more freely, and has also a more compact and bushy habit. The other form is not worth growing, for it is "leggy," and very shy in flowering. It is, in fact, too much like the old *Pleroma Benthamiana* to be deserving of a moment's consideration.

CHOICE BULBOUS PLANTS FOR SPRING FLOWERING.

BY. ROBERT OUBRIDGE,

Church Walk Nursery, Stoke Newington, N.



ESIDES Hyacinths, there are several other classes of bulbous flowers of unquestionable value for the decoration of the conservatory in the early part of the year. They are not, perhaps, equal in every respect to hyacinths, yet as they afford a great variety of colour and form, they should be grown in proper proportions by all who have a conservatory. There are, for example, the early-flowering Tulips, with their richly-coloured, and, in many instances, beautifully feathered flowers. The fragrant and distinctly-coloured Narcissus, the deliciously fragrant Jonquils, the showy but short-lived Crocuses, and so on. Well, a few of each of these subjects are needful in the production of a really good display of spring flowers. There are a few others which may be grown with advantage, but I should advise the purchase of a selection of each of those first, and then if they are considered insufficient, any of the other things which may in previous years have taken the fancy of the cultivator, may be selected. Taking them in the order of their importance, we have first of all the

TULIPS.—These should be purchased rather liberally, for although they do not remain long in perfection, they may be had in bloom for a considerable period by dividing the stock into three or four portions, and then placing them in the forcing pit at intervals of a fortnight or so. The *Van Thols* are the earliest to bloom, and, although they are comparatively small, they present an attractive appearance when at their best. The *Red* and *Yellow*, *Crimson* and *Scarlet*, are of equal value. The *White* variety is very beautiful,

but as yet it is rather scarce, and commands a good price in the market. The *Rose* variety, which is much cheaper, comes, when forced, very nearly white, and is grown in large quantities for Covent Garden Market. The double *Van Thol*, which also has red and yellow flowers, is cheaper than the single form, and those who are anxious to produce the best display possible for a little money, should select it in preference to the others. The *Van Thols* should be planted about two inches apart in shallow boxes, and when they are coming into bloom, lifted out carefully, and put in pots three or more together, or in any of the ornamental receptacles now in vogue for the drawing-room. They can be put in pots at the first, but as it will occasionally happen that some will come into bloom before the others, the most satisfactory results are obtained by growing them in boxes. For forming an immediate succession to the foregoing, and also for flowering later on without forcing, the undermentioned varieties will be found useful. They are not the very best in the several shades of colour, but they are exceedingly good, and have the grand recommendation of cheapness. Single: *Artus*, scarlet; *Cottage Maid*, rose pink; *White Pottelbakker*; *Thomas Moore*, orange; *Yellow Prince*, yellow; double *Duke of York*, dark rose, white border; *Imperator Rubrorum*, scarlet crimson; *La Candeur*, white; *Rex Rubrorum*, bright red; and *Tournesol*, red and yellow. This selection will be quite sufficient for the decoration of the conservatory, as it includes none but those which are of good quality and effective. In some respects they are superior to many of the more expensive varieties. These should be grown in six-inch pots, three bulbs in each, and they should be managed in much the same manner as hyacinths. The compost must be rich and moderately open, and there is perhaps nothing better than a mixture consisting of two parts turfy loam, one part of old hotbed or stable manure, and a liberal proportion of grit. The pots will require a tolerably good drainage in the bottom, and the bulbs should be buried so low, that the extreme point of the bulb only is visible above the surface. They will require plunging in a bed of loose material, as advised last month for the hyacinths, and as the subsequent management is precisely the same, it is not necessary to repeat the details.

NARCISSUS.—The *Polyanthus* *Narcissus* are very sweet-scented, and sufficiently attractive to justify their being grown in moderate numbers. The *Double Roman* and *Dubius*, commonly known as *Paper White*, are especially valuable, because of their flowering very early without the assistance of artificial heat. The best six cheap kinds are—*Bathurst*, *Grand Monarque*, *Grand Primo*, *Citronier*, *Soleil d'Or*, *States General*, and *Sulphurine*. Of the garden *Narcissus*, adapted for pot-culture, *Bulbocodium*, a very beautiful species of comparatively small growth, which can be most strongly recommended, and *Double White*, pure white, and very sweet scented, are the two best. The last-mentioned is so useful for cutting, that as it is cheap it may with advantage be grown in quantities in boxes wherever cut flowers are in request early in the season. All the *Narcissus* required for conservatory decoration should be potted, and otherwise managed in precisely the same manner as the tulips. The small

growers, such as *Bulbocodium*, should be potted at the rate of five or six bulbs in each pot.

JONQUILS.—The delicious fragrance of the flowers of these, combined with an attractive appearance, render them of considerable service for conservatory decoration. The best for pots are the *Double Jonquil*, *single Campernelle*, and *single Sweet-scented*. The best effect is produced by putting from four to six bulbs in each pot, and managing them precisely the same as advised for hyacinths and tulips.

CROCUSES do not remain in perfection long enough to justify their being grown extensively in pots, but as they come into bloom early, and have an attractive appearance when at their best, two or three dozen pots should be filled with them. The most distinct and showy are *Bride of Abydos*, white; *Celestial*, bright blue; *David Rizzio*, purple; *Golden Yellow*, bright yellow; *Sir Walter Scott*, striped; and *Vulcan*, dark purple. The bulbs should be packed close together in the pots, with the points showing just above the surface, so as to produce solid masses of flower. During the earlier stages of growth they must be kept in an airy position near the glass, to prevent the leaves and flower-stalks being drawn up weakly, for when the latter become drawn, they very often fall over as soon as the flowers begin to expand.

SNOWDROPS.—A few pots of the double variety will have a pleasing appearance early in the season, and, consequently, a few should be grown. The extra large roots should be purchased and packed closely together in the pots, in much the same manner as the bulbs of the crocus.

SCILLAS are very pretty when grown in a similar manner to the crocuses and snowdrops. The flowers are of the most brilliant blue, and small masses, such as are produced by putting from six to eight bulbs in a five-inch pot, are very attractive, associated with other things in bloom at the same time.

TRITELEIA UNIFLORA.—This fine hardy plant is most useful, as, with ordinary good management, it will produce a profusion of white flowers, which, intermixed with the graceful grass-green foliage, are very attractive. It should be grown in five-inch pots, and half-a-dozen bulbs put in each.

HOW TO STORE THE FRUIT CROPS.

BY A KENTISH GARDENER.



IN previous communications I have ventured to offer hints and suggestions on the cultivation of the most useful hardy fruits, and I now purpose saying something in reference to storing the crops of apples, pears, and other fruits that can be kept through the winter. I shall also, for the information of those who have no proper place for the storage of fruit, describe the form of structure most suitable

for the purpose. In many gardens the accommodation for fruit storing is very poor, and something like a general reform is much needed to keep the choicer kinds of dessert apples and pears in sheds where they are exposed to changes in the weather, or in places in which no facilities exist for ventilation, is most undesirable, for if they do not decay before they attain maturity, they will be very inferior in flavour to others kept in a suitable structure. Expensive structures are not required, and very frequently sheds of very little use may be turned into most excellent fruit rooms by fitting up the interior with shelves, forming a ceiling to the roof, and providing ventilators near the apex, alterations which will cost very little indeed as compared with the advantages to be derived from them.

First of all we will say a few words about gathering the crops ; which, by the way, is a more important matter than it is usually considered to be. In fact, to gather apples and pears at the right moment, requires no little thought and experience to ascertain when that has arrived. Bushels of fine pears are spoilt annually through lack of knowledge of, or want of attention to, this important point. It is a very easy matter to gather peaches and nectarines, for they are of necessity quite ripe when gathered, but not so with late-keeping fruits. Pears, for instance, if gathered before they are fit, will shrivel and become tough and leathery long before they are fully matured. On the other hand, if they are allowed to remain upon the trees too long they seldom keep well, and those that do not go "sleepy" eat woolly and flat, instead of being full of juice and richly flavoured. It is impossible for me to fix any particular time for gathering any of the kinds, for this depends entirely upon the season, locality, and aspect. The hotter and drier the situation, the sooner does the fruit attain maturity. A good rule for gathering apples and pears is to notice when the stalks will part readily from the tree without having to pull them hard. I believe that great quantities of fruit, both apples and pears, are taken from the trees before they are in a fit condition for storing ; and, if more discrimination were used in selecting them, a better result would be obtained. Many of our best pears seldom present the whole of their fruit so as all to be in one uniform condition the same day. It would, therefore, be much the better plan to extend the period of gathering over several days, going first over the tree and selecting only those which leave the branch perfectly easy, and repeat the same plan about every third day, until the tree or trees are cleared. I do not mean to say that such a plan could be carried out in large orchards, but it is applicable to every garden. Again, with pears, I think many do not allow their best late sorts to hang long enough on the tree to attain a proper degree of maturity, and this I believe to be the cause of many otherwise valuable pears being coarse-grained. The second week in October is not too late for such kinds as *Easter Beurré*, *Beurré Rance*, *Ne Plus Meuris*, *Prince Albert*, and *March Bergamotte*, if the weather is open and mild, but they must not be exposed to more than two or three degrees of frost. All the sorts also are not fit for gathering at one and the same time ; therefore

the choicest kinds should be examined frequently at this season to see when they ought to be gathered. Fine weather should be chosen for storing all kinds; and all that is required to be kept will of course require to be gathered with the hand, and all that fall or are knocked off accidentally should be put on one side for immediate use. Wherever it is practicable, I should advise the fruit to be carried straight to the fruit-room in the baskets in which it is gathered, instead of tumbling them into larger baskets, sacks, and wheelbarrows. The less it is shifted about the less likely it is to get bruised; and it is well known that bruised fruit will not keep for any length of time. It is a most excellent plan to have a cross-handle basket, large enough to hold two pecks, and to suspend it by a strong hook made in the form of the letter S to one of the main branches. It can then be filled carefully on the ladder and taken to the fruit-room, and the fruit spread out upon the shelves. I am now alluding to gathering from large trees, but the same form of basket is the most useful when the trees are so dwarf that the whole crop can be gathered by standing on the ground.

When the fruit is brought into the store-room, it should be spread out on the shelves carefully about two layers thick, and plenty of air admitted until the fruit has done sweating, when no more light and air must be admitted than is really necessary to keep the atmosphere of the house sweet. The fruit should be carefully examined occasionally, and those showing signs of decay removed at once; for if left without attention they will soon rot the sound ones which come in contact with them. When placed on shelves constructed as I shall recommend, no straw should be used, excepting it be to cover them in severe weather to protect from frost. It may, perhaps, be necessary for want of room to put some of the common apples thicker than I have advised; but their keeping qualities will be considerably impaired if they are kept in too large a heap for any length of time. They should be frequently turned with the hand to remove those showing signs of decay, or they will soon be a mass of rottenness fit only for the muck-heap. The temperature must be kept as regular as possible, for when the fruit is warmer than the surrounding air, it is very liable to shrivel; but when there is a sudden rise in the temperature the surface becomes moist, just the same as if it had been exposed to an evening dew. A very little thought and observation will convince any one with an ordinary degree of intelligence that fruit exposed to these alternate wettings and dryings must be considerably deteriorated. With hollow walls, or solid ones lined in the way I shall advise, there will not be much difficulty in keeping a uniform temperature. Air should only be admitted when the external air and that inside the house are about the same, as it would be anything but good management to throw open the ventilators during the prevalence of north-easterly winds to cool the temperature, or during warm southern breezes, which would have an opposite effect.

The size of the fruit-room must, as a matter of course, depend entirely upon the extent of the orchards and wall-trees. It is not advisable to have the house too small, so that the fruit has to be

laid too thickly on the shelves; and the extra expense of a few additional feet in length is not worth taking into consideration. One twenty feet long by twelve feet wide would be large enough for the fruit produced in an average-sized garden. The best form of house is a span-roof, with the side walls about nine feet in height, so that four shelves, besides the layer on the floor, can be comfortably accommodated on each side; and the apex of the roof should be sufficiently high to carry off the rain-water quickly, to prevent the possibility of any damp coming through the roof. It is desirable to keep the interior of the house thoroughly dry, and the temperature as little susceptible to the influences of the changes going on outside as possible. Hollow walls are the best to accomplish this end, and will more than repay the little extra outlay incurred in building them. But if ordinary solid walls are preferred, I should advise some uprights being fixed at a distance of about three inches from the inner surface of the walls, and then either boarded or lath and plastered. There will then be little fear of damp, and walls so constructed will keep out more than treble the amount of frost than an ordinary wall. The roof should also be plastered, for slates are nearly as good conductors of heat and cold as glass. With a covering of slates only, the temperature of the fruit-room will fluctuate as much as that of an unheated glass-house without air. It is simply impossible to keep fruit in a temperature of that kind.

Ventilation should be provided for by means of skylights in the roof, which should be fixed so that they can be opened or shut at pleasure, and regulated to give little or much air, according to the weather and the requirements of the fruit. Wooden shutters should be made to fit the lights to assist in keeping the frost out. It would also be well to fix an iron grating about a foot square in the lower part of the door to enable a current of air to pass through the house when it was thought necessary to do so; especially when the fruit is fresh gathered and brought into the house, and is in full sweat. This grating should also be provided with a wooden shutter. I have had round holes about two inches in diameter made in the bottom part of the door and covered with perforated zinc; this does very well, but I prefer a square grating, and then the air can be shut off with but little trouble. The grating can be covered with the zinc, if the house is used for keeping summer fruit in for a short time. For the latter purpose alone a good fruit-room is invaluable, for it enables the cultivator to gather all fruit which loses its full flavour if allowed to remain until it is dead ripe before it is gathered. Peaches, for instance, never have their full rich flavour if they remain on the tree until dead ripe. I make a point of gathering most of the soft fruits required for the dessert about a couple of days before it is *quite* ripe, and place it in a cool airy place until ready for the table.

The walk down the centre of the house should be three feet wide, and the remaining space on each side filled with shelves for holding the fruit. The floor, as a matter of course, should be boarded over, and then one lot of fruit can be placed upon it, with

four tiers of shelves above, arranged about two feet above each other. To form these, stout uprights will be necessary, at a distance of about four feet apart, one row by the side of the walk, and the other close to the wall; both sides being arranged in the same manner. Stout cross pieces, about four inches square, should be fixed to these uprights to support the lattice-work of the shelves upon which the fruit is to be placed. Shelves formed with lattice-work are preferable, as the air can circulate more freely amongst the fruit, and more layers can be placed upon each shelf, as three layers upon an open shelf or table would keep better than two upon a closely-boarded one. Nine-inch deals, an inch in thickness, cut up into three strips, and each strip placed about an inch apart, and nailed securely in its place, are the best for forming the bottom of the shelf. A strip must also be fastened along the front to prevent the fruit falling off. The cost of a house of this description, though sufficiently complete for all practical purposes, is by no means excessive.

The site selected for the house should be shady, to prevent the sun shining on the roof during the spring months, when it is of the highest importance to maintain an equable temperature. Shade may be secured by planting a belt of trees on the sunny side. If a fruit-room is so built that every outburst of sunshine upon it causes the temperature to rise to almost summer heat, the fruit will be prejudicially influenced by it, and arrive at a state of ripeness before its proper season of use, to the manifest injury of the flavour. It should be well known that any attempt to hasten the ripening of such fruit as apples and pears will end in disappointment, for it is impossible to secure the same degree of flavour in a prematurely-ripened pear as that obtained in fruit arrived at its natural period of maturation. If the internal atmosphere becomes heated so as to cause premature maturation, it must as a natural consequence deteriorate the quality. The same kind of reasoning will hold good with respect to thinly-constructed or exposed buildings, for if they are not proof against the influence of severe winters, the heat of the internal atmosphere will be during the coldest season too low to allow of the proper maturation of the fruit when its season of ripening arrives. For my own part, I would prefer a fruit-room so constructed that in ordinary winters the internal air should never register lower than 35° . There is no doubt a minimum of 40° and a maximum of 50° would be still better, but it would be difficult in buildings of ordinary construction to secure an equable temperature of 40° . What surprises me most is to know that people sometimes recommend cellars for the preservation of fruit. It is true they may serve for such fruit as culinary apples, but I should never expect to eat a well-flavoured late-keeping pear from such a structure, for all cellars are more or less damp and insufficiently ventilated. The only thing which can be advanced in favour of cellars for such a purpose is the fact that they maintain a pretty uniform temperature. Now I admit to the fullest extent the importance of securing an equable temperature in all rooms where fruit is stored; but, at the same time, if it is accompanied with a moist stagnant

atmosphere, I would rather have my fruit exposed to a few degrees more cold than have it constantly enveloped in a soft warm air, because I am satisfied fruit so kept will be divested of that brisk aromatic flavour which properly preserved fruit has; and if we aim at securing these features, depend upon it we must first secure an equable temperature in the room, and maintain at the same time a dry moving atmosphere. At all times we must avoid a parching brisk air, or the fruit will soon show its dislike to it by commencing to shrivel up.

A GAY CONSERVATORY IN WINTER.

BY JOHN BURLEY, F.R.H.S.,

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HOSE who would have a gay conservatory in winter must be up and doing, for now is the time to take active steps towards receiving a plentiful supply of flowers from Christmas onwards. I have also considered it desirable to direct special attention to this subject now, because the Dutch bulbs may be termed the sheet anchor for winter and spring decoration, and now is the time to buy and pot them.

For their bright and attractive colours the *Tulips* will be found most useful. We generally manage to have the *Van Thol* in bloom about the end of November. These bulbs are planted in boxes as thick as we can place them, side by side, in the early part of September; they are then placed out of doors and covered up nearly a foot thick with cocoa-nut fibre; they remain so until the end of October, when we remove a box or two into heat, and they come nicely into bloom and well coloured in two or three weeks. As they bloom we carefully lift them out, and in some cases pot them six or eight in a pot to make a show. The surface of the pot should be nicely covered with fresh green moss. Tulips treated this way are always much admired for their fresh and bright appearance. When the usual method of potting the bulbs in the first instance is followed, the flowers are not so uniform as by the plan we follow, but I think the flowers last longer. They look well also when planted in pans and blended with ferns, the graceful fronds of which look charming resting here and there on the bright tulips. After the *Van Thols* are over, we have, to follow in succession next, the *Tournesol*, crimson and yellow; *Bride*, white and carmine; *Gris de Lin*, bright rose; *Golden Standard*, yellow and red; *Vermilion Brilliant*, scarlet; *La Candeur*, white; and *White Pottelbakker*; finishing up with *Gesneriana* and *Rex Rubrorum*, both bright kinds and strongly coloured. The last-named are about the latest of them all. All the tulips, no matter whether grown in pots or boxes, are plunged under the cocoa-nut fibre, and removed to the forcing-house as required.

The same system is adopted with *Hyacinths*; in fact, this is the October.

first stage with all Dutch bulbs. The hyacinths are not much in bloom until January; we then get *Grand Vainqueur*, white; *Waterloo* and *L'Ami du Cœur*, red; *Baron Van Teyll*, and the blue variety of *L'Ami du Cœur*, for blues. These will be found the best for early work, and after these kinds it will only be needful to pick out those from outdoors that are showing most forward for bloom.

In reference to the *Narcissus*, I would observe, some pots of the old *Roman Narciss* come into bloom very early after Christmas, and should be grown for that purpose; but they are far behind in excellence of colour and truss the later varieties, such as *Grand Primo*, *Queen Victoria*, and *Queen of the Netherlands*. This last kind especially is very fine, the single flowers being larger than a half-crown piece.

Amongst the flowers of lesser importance may be mentioned the *Snowdrops* and *Squills*. At the time we plant our first batch of early tulips, we fill a box or two with *Single Snowdrops* for early work. These will be found very useful, as is also a box of *Scilla sibirica*, for they both come into bloom about the same time, and are handy for filling small baskets and vases for room decoration, as well as the conservatory. Some of these vases have a charming effect if filled with, say a hyacinth for the centre, some bright tulips around, then around the edge scillas and snowdrops. It will not be necessary to plant them very close, as the whole should be finished off with some nice green moss, to hide all the mould, also to form a fresh ground for the flowers.

Speaking of scillas and snowdrops reminds me to ask my readers if they have at any time introduced some pots of the *Hepaticas* in the conservatory for early blooming; if they have not, they have missed a treat, for I know of no plant that reminds one so much of the return of spring as this does. One of the best of the hepaticas is the variety named *Angulosa*. The flowers are a heavenly blue, and thrice the size of any other kind: I have seen it, in fact, as large as a crown-piece; so here is a real gem for all lovers of this kind of plant.

Some *Lilies of the Valley* should be introduced into a gentle heat, for early blooming, about the middle of January; but it is little or no use starting them before that time, as the flowers are very loose and watery-looking if forced too early; and as for foliage, you get none, unless you wait for it until the flowers are past. Splendid clumps of lily of the valley for early forcing are imported every year from Paris and elsewhere. On their arrival they must be at once potted in sandy soil (using pots for the purpose proportionate to the size of the clumps), and placed away in a cold frame and covered up with cocoa-nut fibre to a depth of four inches. They may remain thus until required for forcing; they will by that time have begun to push their crowns up a bit through the fibre. It will be found better not to at once plunge them into great heat to start with; if they are kept just warm for a week or so to start the foliage, it will be found that, when greater heat is after given to them, that bloom and foliage will come nicely together.

After they have done blooming, they should be plunged in their pots, in a north aspect, and covered over with short manure, about half decayed, and in the autumn and coming winter they will be found quite equal to do the forcing work again; in fact, some I treated so appeared to me not only to bloom stronger, but earlier, the second year, and without requiring so much heat.

The early-flowering *Acacias* begin to come into bloom nicely about Christmas, the old *Armata* being about the first to show flower: this variety is very showy, and its sweet-scented blossoms are much admired. But the plant is rigid and stiff in its growth, and wears altogether a shabby appearance when out of flower, and so is not a universal favourite. But a great deal can be done to make this respectable at all seasons; for instance, when the plant has done blooming, let it be cut into shape a bit, then look to the soil, and renew that, also give it a larger pot should it be required, and finally, give it a moderate amount of attention during the summer, and it will amply repay for all in the coming winter by a profusion of its golden-yellow blossoms. I must particularly recommend *A. Drummondii* as the best of the whole family for our purpose. The habit of the plant is graceful, the flowers are borne in great abundance, the colour is straw-yellow, and it continues a long time in flower. After blooming, repot them if required; the proper soil is a light sandy peat, with but a small proportion of yellow loam and leaf-mould added—say three parts sandy peat to one part loam and leaf-mould.

There are nice little plants of the *Otaheite Orange* imported into this country every autumn, full of flowers and fruit in various stages of growth. They look very pretty mixed up with other plants, and of course are very desirable. They require careful treatment, a snug warm house rather humid in its atmosphere, and occasional doses of weak liquid manure.

The fragrance of their flowers renders the *Daphnes* favourites with everyone. Indeed, *Daphne indica rubra*, with its compact trusses of delicious flowers and dark green foliage, is a glorious subject. This daphne should be in every large place, as it is easily managed, and extremely effective: anyone who grows a camellia well will find no difficulty with the daphne.

There are also the *Gardenias*, well worth growing for the grateful perfume of their flowers, and *Gardenia radicans* and *G. florida* can be easily brought into flower early in the year, by the help of a little bottom-heat; they require plenty of water when growing; and after they have done flowering if they are allowed to have a season of rest, they will bloom all the better for it. Before they are started to grow they should have their soil renewed: let it be a mixture of sandy peat and leaf-mould. Remove all the old soil that will easily come away without much disturbing the roots, then pot and plunge in bottom-heat; this, with a liberal supply of water overhead and at the roots, will stimulate them into growth, and plenty of flowers will be the result.

THE FRUIT AND VEGETABLE CROPS OF 1874.



THE GARDEN season has its lessons, and with a laudable desire to insure the best results in the production of those crops which are so essential to our health and comfort, we should not be slow in taking them to heart. The summer of 1874 has been characterized by drought, and a comparative high temperature, and it may, therefore, take its place with the summers of 1868 and 1870, which will long be held in remembrance by the present generation. The average temperature of the summer through which we have just passed will not range so high as the average of either of the summers of the two years mentioned above, because we have had several rather long spells of cold weather to counter-balance the excess of heat. The intense heat, for example, experienced during the last ten days or so of April, which set many inexperienced people busy bedding out, was followed by a long period of cold weather, which culminated in a sharp frost in June that betokened the potato failing, and in many instances killed kidney beans and vegetable marrows, and also did an immense amount of mischief in the flower garden. In August the temperature declined very considerably, and in the Crystal Palace grounds at Sydenham the thermometer went down to within one or two degrees of the freezing point. Thus it is that, although we have had much hot weather, the average for the summer months will not be so high as in 1868 and 1870, for in these years the hot weather set in early in the spring, and continued, without intermission, until late in the autumn.

As regards the crops of fruit and vegetables, 1874 will bear very favourable comparison with either of the recent seasons of drought.

Fruit generally has been tolerably abundant. Plums have been more plentiful than for many years past, and there will be no difficulty in filling the fruit-room with excellent samples of apples and pears. It was at one time feared that the fruit crop would have been totally destroyed, for the frosts experienced during the time the trees were in bloom, were comparatively severe; as also were those which caused so much anxiety later on, whilst the fruit was young and tender. The safety of the crop may undoubtedly be attributed in the one case to the dryness of the bloom, and in the other to the protection afforded by the newly-developed foliage, and a more striking lesson relative to the importance of shelter in the production of fruit could not well have been afforded. It is not so much the cold as the dampness which injures the flowers, and the experience of this season, coupled with observations made in previous years, has shown most conclusively that a frost which is sufficiently severe to totally wreck the crops when the flowers are damp, is comparatively harmless when the bloom is quite dry. And the late frosts demonstrated that moderate shelter only was quite sufficient to protect the young fruit from injury. There can be no question as to the value of glass in the cultivation of the choicest kinds of fruits; for, provided it is managed properly, the crops will

be more than sufficient to pay an ample interest on the outlay and the additional labour necessary in the management of the trees.

There are, of course, general matters to be considered before proceeding to the erection of glass houses on an extensive scale, and one of the most important points is the large outlay involved in the first instance. It is quite impossible to make sure of a good crop of such fruits as peaches and nectarines in our capricious climate without the aid of glass houses, but much yet remains to be done in the protection of the trees by means of temporary shelter. Protective materials as generally applied do more harm than good, and the fact that it is of the highest importance to maintain the flowers in a dry state, whilst at the same time avoiding an interference with the circulation of air, is ignored. In the case of wall trees, there is little difficulty in keeping the flowers safe from frost, as broad copings fixed to the top of the wall, aided with canvas so arranged that it can be put on or taken off without much difficulty, will accomplish the desired end. It is of little consequence whether the coping is made of thin boards or glass; the latter is in some respects preferable, but it is comparatively costly, and more expensive to maintain in good condition because of the inevitable breakages. These copings are needful not only for apricots, peaches, and nectarines, but also for pears, plums, and cherries. Pears are of high value, because of their being in splendid condition when none of the soft fruits are available for the dessert, as well as earlier in the season, when they are abundant.

The sudden outbursts of hot weather, alternating with periods of cold, sharp frosts, and easterly winds, very forcibly illustrated the advantages which may be derived from shading the trees previous to their flowering during outbursts of brilliant sunshine. By means of a moderate amount of shade the flowering of the trees may undoubtedly be retarded considerably, and the risk of the bloom being destroyed by frost materially reduced. The season has certainly afforded us the lesson that, by the adoption of some system of shelter by which the flowers can be kept dry, a fair crop can be insured with a tolerable degree of certainty.

The season has been by no means favourable to the vegetable crops, especially of the choicer kinds, such as peas and cauliflowers, yet in gardens where the quarters have been prepared in the manner so frequently advised in these pages, moderate crops of even these things have been obtained. But of many vegetables there was a comparative scarcity, and at one time during the summer kidney beans, spinach, and cabbages, realized prices in Covent Garden that must have brought a "good penny" to those who were fortunate enough to have good crops. Amongst the vegetables which have produced good crops are French Beans, Vegetable Marrows, Tomatoes, and Lettuce. Potatoes and French Beans are essentially dry weather vegetables; and although Mr. Berkeley stated at a recent meeting of the Royal Horticultural Society that the trial of French beans in the Society's garden at Chiswick had been abandoned owing to the partial failure of the crops, owing to the dry weather, yet no veget-

ables yield such a satisfactory return in dry seasons. Kidney beans undoubtedly grow with greater vigour when assisted with an abundance of moisture at the root, but they may be sown in the driest of seasons, with the full assurance of obtaining a good crop. They certainly rank high amongst the best of our summer vegetables, for they are thoroughly reliable, and when gathered at the right moment, and cooked properly, they form a dish which is generally acceptable. The *Red Flageolet*, which was recently sent out at a high price under another name, has this year proved to be one of the best of its class, for it has produced tremendous crops, the pods, when quite young and tender, averaging nine inches in length, and three quarters of an inch in breadth. *Carter's Advancer*, a new variety of this season, has also turned out exceedingly well, but the *Mont d'Or*, and other Golden Butter beans, certificated by the Royal Horticultural Society last year, are practically worthless; they are not remarkable for productiveness, the pods are of medium size, and of a pale yellow colour, which changes during the cooking to a most objectionable yellowish green, and those who were not acquainted with the varieties would not be slow in coming to the conclusion that they were old samples of the ordinary varieties badly cooked. The Runner beans sown on the level have not done so well this year as usual. They have required abundant supplies of water, and even then there was some difficulty in obtaining sufficient supplies, because so many of the flowers did not set. The rows planted below the level, and mulched with short grass, and other refuse, bore abundantly. This may be safely attributed to the soil about the roots being maintained in a much moisture condition than is possible when they are sown on the level. By preparing the ground as for celery, and sowing in the trenches, Scarlet Runners yield well in dry seasons, and in ordinary summers they will be found one of the most useful vegetables for small gardens that could be grown.

Vegetable Marrows have done well where the ground was well prepared, and they have been well supplied with water. It is not good practice to plant them on a manure heap, as is so frequently done, but they require to be planted in soil that has been liberally dressed with manure, and stirred deeply. Planting on mounds is also objectionable, for in dry summers the plants are dried up, and it is practically impossible to supply them properly with water, as it runs away as fast as it is poured on, and very little finds its way to the roots. The tops of the young shoots nicely cooked make an acceptable dish where there is a scarcity of vegetables, but young tops and fruit cannot be obtained from the same plants. It may be said that there will be no gain in gathering the shoots instead of leaving them to attain their full development and produce fruit.

The potato crop of 1874, notwithstanding the fact that in many of the more important districts the haulm was cut down to the ground upon more than one occasion, is one of the best we have had for some years; the tubers are mostly of fair size and of splendid quality. The samples obtained by the ridge system of

culture are un-~~der~~ dily good ; and although the advantages of this system are not ~~so~~ apparent this year as was the case last year, yet they were sufficiently so to prove to demonstration that it may be adopted without any fear of failure should the rainfall be below the average, and with the full assurance that, should the summer be wet, the crop will be vastly superior to the produce of sets planted in the usual way. As in the case of potatoes grown on tiles, as explained by Mr. Hibberd in his lecture before the Society of Arts early in the present year, the potatoes will not suffer material injury from continued dry weather, provided they have a sufficiency (say twelve inches) of soil heaped over them. If the covering of soil is only three or four inches in thickness, the soil will soon be dried through, the plants cease to grow freely, and the produce be small in consequence.

Owing to the heat and drought which prevailed in July, there is in many gardens a deficiency of winter greens, and unfortunately it is now too late to do much in the way of making it up. A small breadth of winter spinach may be sown if there is a sheltered border available, with a view to obtain a supply to form a succession to the crop sown at the usual time. If the winter happens to be mild, and otherwise favourable, it will come in useful, but should it be severe and destroy the crop, it will not be of much consequence, as the border can then be dug over and prepared for early spring crops. Turnip tops, which are sent to the metropolitan markets in such immense quantities in the early part of the year, are much appreciated by many persons, and all the turnips not required for the table during the winter should be allowed to remain in the bed. They will furnish a few dishes of greens in the early spring months. Turnips sown too late to form bulbs large enough for the table, will also be found of service for supplementing the other green vegetables towards the end of February and throughout March.

CULTIVATION OF THE HERBACEOUS CALCEOLARIA.

BY J. JAMES,

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It is entirely a mistaken idea to suppose that herbaceous calceolarias are difficult to grow, or that I have some grand secret in my possession that enables me to grow such immense plants as those which I exhibit at the principal horticultural meetings held in and near the metropolis ; for I have no secrets beyond those which I shall disclose in the course of my remarks. To state the case as plainly as possible, no plants are more thoroughly simple in their habits and requirements than herbaceous calceolarias. They require no special or extraordinary admixture of soil or manure water, but simple homely fare, and to be attended in a careful and workman-like manner.

October.

Some few growers, who have been especially successful in the cultivation of any particular class of plants, are very apt, in giving directions for the cultivation of their favourites, to state part of the essentials only, and shroud the other part in mystery, or else withhold information altogether, for fear of being beaten. But I shall not allow any such narrow-minded ideas to influence me, and shall state all I know upon the subject, and then it will be entirely the reader's own fault if he does not grow them as well as myself—that is, if he has space to grow them. The reader must not be disappointed if everything does not happen to turn out exactly as he would wish, or the plants not attain the same proportions as mine, the first time of his taking them in hand. It must be borne in mind that I have had many years' practice with them, and I have closely studied through that time to improve them in every possible way. How far I have been successful in my endeavours in this respect the various prizes which I have won, and the favourable notices of them which have appeared in these pages, speak for themselves. It is not my intention to enter into this part of the subject farther than to show that to attain a high degree of success in the cultivation of any plant, or in any other affairs, a certain amount of labour must be undergone, and a certain degree of attention and observation brought to bear upon the subject; and successful results are not so much due to knowing a vast deal, and doing little, as to knowing little, and doing that thoroughly which is known.

RAISING THE PLANTS FROM SEED.

As I have already observed, the *calceolaria* is easily grown; and to begin with the cultural treatment, I will commence with raising young plants from seed, as this is the principal way which I adopt for increasing my stock, and is also adopted by most of our other good growers; and I find that I can always depend upon getting flowers of first-rate quality, and with not more than three or four inferior ones in a batch of several hundreds, so faithfully do they reproduce themselves from seed when saved from good parents; and I think it scarcely necessary for me to say that seed from bad flowers will produce young plants of inferior quality, and, of course, if growers prefer sowing indifferent seed, or, more properly speaking, seed saved from indifferent flowers, they must take the consequences. I make a practice of sowing my seed directly it is ripe, or as soon after as practicable; but if I were to fix a time, I should say the middle of July is the best, and the seed will be ripe, generally speaking, by that time. Not but what nice plants can be had from seed sown later, but if both sowings receive the same treatment, the first will produce the best plants, and they will flower better the following season. They have more time to grow, and the stronger the plants are, the larger may the heads of bloom be expected. Therefore, fixing upon the 15th of July as a starting-point, I will frame my directions accordingly; but it will not make any difference if the seed is sown a few days later. My seed is sown in ordinary seed-pans, which are prepared by placing a thorough good drainage of broken crocks in the bottom, and a layer of the rougher portion of

the soil over them, to keep the other portion from running down amongst the corks, and preventing the ready escape of the water. Too much importance cannot be attached to this, for if the soil once gets pasty, the chances are that the seed will perish in the ground, or, if up, the young plants will go off wholesale. The remaining space in the pan is then filled up with loam and sand, chopped finely, and a layer of sifted soil sprinkled over the surface, to receive the seed. This last should have a liberal admixture of silver-sand with it, and be pressed perfectly flat; for if the surface is rough and uneven, one portion of the seed gets buried too deep, and the remaining part has no covering at all. The consequence of this is simply that all perish. The surface can be easily made smooth with a piece of board or the bottom of a flower-pot. When this is done, the pans should have a good watering, and after the water has soaked away the seed can be sown. A little carefulness in doing this is necessary, for the seed is so small that if sown carelessly there is danger of its being sown in lumps instead of being distributed regularly and evenly over the surface. After the seed is sown it should be covered with a light sprinkling of silver-sand, the lighter the better, provided the whole of the seed is covered. On the other hand it must not be covered too deep; this latter point is an error which cannot be too carefully guarded against, and I quite believe that at least two-thirds of the failures of the seeds to come up can be traced to the latter cause. After the seed is sown and covered, a light sprinkle from a fine rose is beneficial in settling everything in its place. I place my pans in a small propagating case that I have until the young plants make their appearance. As soon as they are nicely up, a little air is given at first, and gradually increased until they are strong enough to allow the case to be taken away altogether. Previous to having this case, I used to place the pans under an ordinary hand-light or in a cold frame, whichever happened to be most convenient; but I prefer the hand-lights, for they can be placed in the greenhouse, and then the seed-pans are less likely to be forgotten. It must not be supposed that because this seed will keep good done up in paper packets, and perfectly dry, that it can be either dry or wet, no matter which, after it is sown without being injured. The seed very soon after it is sown begins to germinate; and if it once gets thoroughly dry afterwards, there need be but very small hopes entertained of its ever making its appearance above ground. And, as I have said before, too much moisture is equally injurious; what is required is to keep the soil just moist, and no more. The pans, before and after the young plants begin to vegetate, must be shaded from the sun; for it is impossible to keep a regular moisture in the soil if they are exposed to its full power. At all times they should be watered through a very fine rose, or the seeds will be washed out of their place and be buried too deep; and, besides, it lessens the chance of getting a good stock of plants if the seed is disturbed after germination has commenced.

TREATMENT OF THE SEEDLING PLANTS.

We will now suppose that the young plants have been gradually inured to bear the atmosphere of the greenhouse, and are ready for

pricking off into pots. Before saying anything about this, I will dispose of the question of soil at once, and prevent any unnecessary repetitions: for whether for the first, second, or third shift, the same soil will be required. As a proof that I am right in my assertion that these plants are extremely simple in their wants, I will say that I grow them entirely in loam mixed with a little rotten dung. The kind of loam I use is the top three or four inches of an old meadow, cut six or twelve months before it is wanted for use, and stacked up and mixed with about one-fifth of its bulk of rotten manure. By this way the goodness of the manure gets thoroughly incorporated with the loam before it is used; and I consider it far preferable to mixing a lot of manure at the time of potting; not that there is any particular harm in mixing the manure and loam together at that time, but it is decidedly the best way to do so when it is first stacked up. The soil should be chopped up before commencing to pot, and every particle of fibre in the loam ought to be preserved, to assist in preventing the soil running together and getting close. It is not well to chop the soil too fine; a little judgment upon this point must be exercised by the cultivator: but to take a broad view of the subject, I may safely say that the larger the pot the rougher may the soil be. In no case must it be used in lumps as large as one's fist, such as is employed in potting pines and orchids; a sprinkling of sharp silver-sand should be mixed with the soil at all periods of their growth, but double the quantity will be necessary at the first potting as the plants will then be young and tender, and every encouragement is necessary to induce them to root quickly. We have so far disposed of the soil question, and will now turn our attention to the removal of the young plants from the seed-pans. The necessity of sowing the seed regularly will be patent now if it has been sown in clumps, as is often the case. The plants will be drawn up weakly and unable to bear much handling, instead of being chubby little fellows able to stand almost anything. I have two ways of dealing with the young plants, according to my convenience. Sometimes I prick them out into other pans, let them get nicely established, and then transfer them to small sixties; at others, I pot them off direct into the small pots. But, as a rule, I pot off the strongest, and prick the weakest into pans, and this is the way I shall recommend here as most worthy of general adoption. It gives the small plants plenty of chance to form nice little clusters of roots before they have to rough it in the pots with the others, and they will not then be long before they get established. The soil in which plants are placed that are a long time before they fill the pots with roots very often gets sour, and no *calceolaria* will root in sour soil. So we have to guard against this by treating the plants in the way I have described. At the time of potting, the soil should be in a nice working condition, not too wet or too dry, and the plants should be placed in a cold frame after the operation is completed, and kept close and shaded until they root into the fresh soil, when abundance of air is necessary to keep them thoroughly healthy; but at no time is it advisable to expose the plants to strong sunshine. Directly these pots are nicely filled with roots, shift into five-inch pots, and keep them close for a few days.

WINTER MANAGEMENT.

In the beginning of October the plants should be transferred to the greenhouse stages, and there receive all the light possible, and plenty of air without being exposed to cold cutting winds. They must be watered cautiously up to this time. When growing vigorously, the plants require plenty of water, but through the winter they must have no more than is just sufficient to keep them in health. Too much water through the winter months is certain death to them; neither should they have more artificial heat at any time than is necessary to protect them from the frost. They are impatient of fire-heat, and it does them no good, but a great deal of harm; it weakens the constitution of the plants, and the result is, weak and drawn foliage, and flower-stalks with but a small amount of bloom.

MANAGEMENT FOR FLOWERING.

If the plants are strong, which they are sure to be, with an ordinary amount of attention, shift into eight-inch pots in February and be especially careful in watering for a few weeks afterwards. As the flower-stalks make their appearance support them with neat sticks, to avoid their being broken about, which their brittle nature render them especially liable to, even when grown as stocky as it is possible to grow them. I never stop them unless they are coming into bloom too early, for I find that the heads of bloom are quite as large when left alone. Plants intended for large specimens for the following year should have their flowers removed immediately the size, shape, and colour of them can be seen, be kept cool all the summer, and shifted into larger pots in autumn, early enough to fill the pots with roots before winter. More care in watering is necessary the second winter than the first, for the plants are in greater danger of going off than before. These will probably require tying out before the flowers make their appearance. It must be done with care, for the side-shoots easily snap off, and the shape of the plant is completely spoilt.

RAISING THEM FROM CUTTINGS.

I have not said anything about growing plants from cuttings, for the treatment is the same after the cuttings are rooted. They are easily struck in a cold frame if taken off as soon as they are large enough, and kept close and shady. The cuttings should, of course, be taken from the very best varieties you have, and from plants which have not been allowed to ripen seed. Those who know how to manage cinerarias from cuttings will do well with calceolarias, but I advise the amateur to depend chiefly on seeds. At each and every potting, let the pots be well drained. I prefer crocks broken to the size of the top of one's thumb to larger ones, and I believe they drain the pots more effectually; and I always place a thin layer of rough stuff over them. Invariably use clean pots, and keep the soil in a nice healthy condition, neither too wet nor too dry. At all times, more particularly through the winter, let this rule be strictly

observed. Shade when the plants are in bloom; and, lastly, on the first sign of there being a single green-fly on the plants give the house or pit a thorough smoking with good tobacco paper, but not in too strong a dose at one time, for the foliage is tender and particularly susceptible to injury from it. On no account let the green-fly or other pest get ahead, for they soon ruin the plants, and it is an extremely difficult matter to destroy them; for they shelter themselves underneath the leaves, and the smoke has a great difficulty to reach them.

DOG'S-TOOTH VIOLETS.

BY ANDREW MURRAY, ESQ., F. L.S.

Communicated to the Scientific Committee of the Royal Horticultural Society.



THE Yellow Dog's-tooth Violet is, I think, the best acquisition, from a horticultural point of view, that I saw among the Utah mountains. It occurs in vast numbers, covering acres with its bright and glowing yellow flowers. One of its habitats is easily accessible from Salt Lake City, being within two hours' walk of it. It travels perfectly well in the bulb, and scores of bulbs that I have sent by post wrapped up in oil-skin reached England safely for a postage of a few pence. I sent all my living plants in this way through the post, and with the single exception of an Iris, which I begin to think must be an annual, all seemed to have arrived in safety. It has, moreover, the great advantage of growing within a considerable range of altitude. It is found on the very crests of the hills, covering considerable spaces, but the first time I met it was in a small glen called the City Creek (pronounced crick), running up from Salt Lake City and at no great elevation above it. It was a lovely morning in April, the sun beating strong into the glen or cañon, the tiger beetles had just come out and were flying strong and vigorous, settling constantly on the road which meandered up the glen parallel to the stream that murmured by its side, and numerous butterflies flitting and sailing about—the American variety of the Camberwell Beauty was especially numerous and fine. I had gone about two miles up the Creek to a point where some conglomerate rocks, with caves and holes in their faces said to have been a few years ago the abode of the grizzly bear, began to contract the sides of the glen previously to opening it up somewhat wider a little higher up. The sides of the rough road and the sides of the stream itself were clothed with willows, poplars, rose bushes, etc.; and the undergrowth chiefly consisted of the holly-leaved berberry, which grows everywhere up such glens in profusion. It was not so beautiful, however, as I expected; trodden down by man and beast it looked broken, damaged, and imperfect, for the cattle of Brigham Young and his tenants wander over all these hillsides. The Mahonia aquifolium, therefore, in a wild pastoral country is rather a failure, though it would probably

be different were there nought but Indians, deer, and bears to admire it; still even now its glossy leaves and bright yellow blossoms are refreshing and pleasing to the eye, although not to be compared with its beauty in our own country, where it is protected and cared for. Pushing along through this and the shrubs along the river-side, a bright yellow flower something like a small hooped Daffodil caught my eye, growing some distance ahead in a moist bend of the road among the roots and under the shade of the Mahonia and Burr Oak. "Can this be a daffodil?" said I to myself; "I did not know that there were any in North America." I drew near, and found that it was not a daffodil, but a large, bright yellow, Dog's-tooth Violet, with its petals curled back like those of a Tiger Lily. The first one that I saw had only one head; presently I saw another with two flowers on the same stem; then one with three, and on up to half-a-dozen. I was immediately on my knees grubbing at them with my knife; but it was no easy task. The longer stem seemed as if it would never show its bulb. Perseverance, however, as usual met with its reward; several bulbs I lost by the stem breaking or becoming involved among the matted roots of the Mahonia or Burr Oak, but I got a few, and resolved to return next morning, like Oliver, to search for more. I had no botanical books with me, but a Salt Lake friend fortunately possessed a copy of Dr. Sereno Watson's recently published quarto on the "Botany of the Fortieth Parallel," being part of Clarence King's report on that region, and having recourse to it I made my *trouvaille* out to be the *Erythronium grandiflorum* of Hooker (fig. 173). Next day I was back to the same locality, and found one or two additional habitats, all on the City Creek glen or cañon. While I was busily occupied in obtaining a few more bulbs I was aware of some one approaching, and looking up I saw a young man carrying a gun, looking on benignantly at my operations. "A botanist?" says he. Instinctively I felt that he, too, had been touched by Ithuriel's spear, and on inquiry *more scotico* I found that it was so. He knew a little of botany and was able to give me the names of a good many of the surrounding commoner American plants, which were new to me. I enquired if he knew this *Erythronium*, and said I supposed it to be *grandiflorum*. "No," said he, "that is not the *grandiflorum*; it is white and larger. I can show you where it grows, higher up;" and he did accompany me in search of it but missed it. What he spoke of is the white variety, described as *albiflorum*, and he also mentioned a pink one; these are certainly to be found in the neighbourhood, although I missed them.

Passing, however, from the getting of the plant to the plant itself as it has now been introduced into this country—and will, I doubt not, be hereafter sent over in still greater abundance—the reader may, perhaps, like to be reminded of what we know about *Erythroniums* in general and more particularly of the species in question.

Everyone knows our common Dog's-tooth Violet, *Erythronium dens-canis*. It is that species that has supplied the derivative of the generic name, *ερυθρὺς* (red) a name by no means applicable to the majority of the species, seeing that most of them are yellow or white.

The *E. dens-canis*, although common in our gardens, is not a native of Britain, but in Switzerland and other parts of Europe it is common. It also extends all the way across Asia to the Pacific coast, through Southern and Temperate Siberia, Baikal, Daburia, etc., where it assumes at least three different forms or varieties—the common one; one called *E. sibiricum* by Fisch, and another called *E. parviflorum* by Regel. This, I believe, is the only old-world species. Two other supposed species, one (*E. bifida*) with a bifid style, and another called *longifolium*, from Switzerland, have been described by Sweet in his “Flower Garden;” but they are only varieties. America is better provided with species. The Atlantic slope of the continent has two—one (the common yellow Adder’s-tongue), *E. americanum*, of which *bracteatum* (Boott) is a var., is yellow, and has the green leaves spotted with purplish and dotted; the other, *E. albidum*, has a white or bluish white flower, and the leaves spotted but not dotted. Two other names (*E. Nuttallianum*, and *E. carolinianum*) are either varieties or synonyms of these. Now with reference to these two species, I should like the reader to note what are the distinguishing characters, for he will presently see that exactly similar differences occur in the varieties of the *Erythronium* of the Pacific slope; and if what is sauce for the goose should be sauce for the gander, it would appear to follow that either the two eastern species should be united, or the varieties of the western species should be separated into different species. At the same time, I should note that in speaking of the second of the eastern species (*E. albidum*) I do not myself know the plant, and speak only from Prof. Asa Gray’s description in his *Manual*. The differences then between *E. americanum* and *E. albidum* are these:—

<i>E. americanum.</i>	<i>E. albidum.</i>
<i>Leaves</i> —spotted with purplish and dotted.	—spotted but not dotted.
<i>Perianth</i> —pale yellow, spotted near the base.	—white or bluish white.
<i>Style</i> —club shaped, stigmas united.	—club shaped, stigmas 3-cleft,

On the western side of the Rocky Mountains we have the species *E. grandiflorum*, which has led us to this subject. It was first described by the late Sir William Hooker in the *Flor. Bor. Amer.* ii. 182, and four varieties indicated:—

1. *E. grandiflorum* var. *minor*, Hook.; flower yellow and single on the stem; leaves green and not spotted; stigmas united and brought to a point. This is figured by Lindley in the *Bot. Reg.* t. 1786.

2. *E. grandiflorum* var. *giganteum*, Hook., Lindley, *l. c.*; flowers yellow, from two to five flowers on the stem; leaves green and not spotted; stigmas united and pointed.

As to these two varieties, there can be no doubt that they are one thing. In the large patches of them which I saw in Utah, every variety, from that with a stem with a single flower up to others with as many as nine or ten flowers on a stem, were to be seen growing

together, almost as close as Crocuses in a nurseryman's flower-bed. Of this variety, therefore, we may say with Marc Antony, "Let this fellow be nothing of our strife. If we contend—out of our question wipe him."

3. *E. grandiflorum* var. *albiflorum*, Hook.; flower white, only one on the stem; stigmas 3-cleft, with the lobes entire at the apex; leaves green and not blotched.

This variety has lately been flowered by Dr. Regel, of St. Petersburg, and described and figured in the *Gartenflora* (August, 1873, p. 227), and the characters above given are taken from his description.

4. *E. grandiflorum* var. *maculatum*. Flowers same as last variety; leaves blotched.

I add this as another variety on the strength of the description given in their Catalogue for 1873 by Messrs. Backhouse, of York, who have introduced it and flowered it in England. They describe it under the name of *Erythronium giganteum*, Lindl.—the gigantic Dog's-tooth Violet—as follows:—

"Think of a Dog's-tooth Violet growing 9 to 18 inches high, and bearing three to ten large flowers on one stalk, and a fair idea may be formed of this noble species. Our collector states that it forms a branching somewhat confluent spike of flowers, usually of a creamy-white, shaded with delicate pink or purple; others are quite white, and others again of a light lemon yellow. In some districts it is of a clear red purple. The blossoms are individually 3 inches or more across, and very handsome, the petals being broad and well expanded. Foliage blotched and marbled with purplish brown. Months of flowering, February, March, and April."

I incline to think that in their native country April and May would best express the flowering months. Of all the varieties this seems to have differences of the greatest value. Generally speaking, one would feel disposed to admit as distinct two varieties which, in addition to other specialities, have such a remarkable distinction in green leaves and blotched purple leaves, but here all the differences seem to be unstable, while the main characters are constant; thus the bulb, which is peculiar, is, I believe, the same in them all. It is of a peaked oval shape, and the rootlets spring out, not at the termination, but at about a third from the bottom. I do not think, therefore, that we can avoid coming to the same conclusion as Hooker and the American botanists, and regarding them all as mere varieties of one species.

Besides the above we have—

5. *E. grandiflorum* var. *Smithii*, Hook., of which the flowers are rosy purple, and one on a stem; and

6. *E. grandiflorum* var. *multiflorum*, Torrey in Pac. R.R. Rep. iv., p. 146. Flowers, bright lilac, yellow at the base on the inside; flowers one to fifteen on the stem. Stigma club-shaped; leaves not spotted.

It is obvious that these differ from the common yellow type in little but the colour.

HARDY CYCLAMENS.

BY WILLIAM BRADBURY.



IN late years a large amount of attention has been paid to the lovely *Cyclamen persicum*, but the hardy kinds which may be most successfully cultivated without the aid of glass have been somewhat neglected. Many amateurs do not appear to be aware of the fact that there are at present in cultivation a considerable number of species, all of which are, in their way, exceedingly beautiful; and of some of these there are several distinct varieties. In the excellent bulb catalogue recently issued by Mr. Ware, of the Hale Farm Nurseries, Tottenham, who pays special attention to this class of plants, there will be found ten species, bearing flowers ranging from deepest rose on the one hand to the purest white on the other. They are all certainly well worthy of a place in the garden, and may be considered especially valuable to those who are unable to grow the more showy *Cyclamen persicum* and its varieties. In selecting from the lovely *Erythroniums*, *Primulas*, *Doronicums*, and the rest of the spring flowers, the hardy *Cyclamens* might claim pre-eminence for their beauty. We shall endeavour to carry the thoughts of our readers forward by proposing the more extensive cultivation of them as a task admirably adapted to the range of practice and means of the majority of amateur cultivators, and as some of the best of all plants known for the entertainment of lady gardeners. The hardy kinds, it should be known, show their bloom in the borders in the first flush of the spring, and during a deluge in February or a howling March wind, enable us to antedate the summer when it is yet very far off, and experience some of the warmth and fragrancy already in our plants. What a matchless grace is there in these plants, their deep green and shining leaves are like a cluster of fairy shields, and their delicately-tinted and delicious odorous flowers, elegantly poised on their slender stems, like banners and beacons for Puck and his playmates. The wonder is that they have not some such a place, in story and song, as the Violet, the Rose, and the Primula; and, indeed, they would have had a first place, had nature but sprinkled their blossoms on our plains, as she has sprinkled them among the slopes of the Alps and Pyrenees, and among the woods and wastes of Georgia and Cyprus. Indeed, we can almost claim *Cyclamen hederifolium*, the Ivy-leaved Sowbread, as a native, for it is said to be found growing wild in some Welsh localities, and in Deakin's "Florigraphia" habitats are assigned it at Bramfield, Suffolk; Sandhurst Green, and Goudhurst, Kent. Dr. Deakin says of this species, "It is frequent in the woods and shady places in various parts of Italy; and so profuse in some districts about Pisa, as to give the surface of the ground an apparent clothing, at a distance, of a delicate pink tissue."

In speaking of the cultivation of these flowers, it must, first of all, be said that it would be a folly to deal with hardy *Cyclamens* as we deal with most other hardy spring flowers, because if

exposed to all the rigours of the early season at which they bloom, nothing but disappointment is to be expected. Hardy Cyclamens must not be committed to a common garden border in the same way as we plant tufts of Daisy and Arabis, and, except in warm localities, where the soil is peaty, the border must be specially prepared for them. Those who grow *Ixias*, *Sparaxis*, and other of the hardy Cape bulbs, out of doors, are in just the proper position to do justice to the hardy Cyclamens. A border facing north, sheltered with a back wall or greenhouse, or enjoying some of the surplus warmth from a stove or furnace, and consisting chiefly of peat and leaf-mould, on a warm and well-drained subsoil, is the place for Cyclamens, *Tritonias*, *Ixias*, the hardy *Amaryllises*, *Alstræmerias*, and myriads of the choicest flowering plants known, which need not so much the help of artificial heat as moderate protection against the scathing blasts and perishing sleets of our springs. In such a border in some parts of the south-western counties, all the species of *Cyclamen* could be grown, but anywhere the so-called hardy kinds might be cultivated with the certainty of success.

We can promise to any of the readers of these remarks, who will make up a border for plants of the kind just named a very large amount of enjoyment. If the position is well drained and sheltered, all that hardy Cyclamens require is a mixture of turfy peat, leaf-mould, and silky yellow loam, equal parts. This must be a foot to eighteen inches deep, and when the bulbs are planted, the bed should be covered with two inches of dung rotted to powder. The season for planting is October, and every succeeding October the bulbs should be taken up and replanted, otherwise the flowers get fewer and poorer every year. In planting, use silver sand in contact with the bulb, and press the bulbs of *C. coum* an inch below the surface. The others press in slightly, in the way in which onions are planted. The bed should be covered during winter with four inches of flaky leaf-mould, or cocoa-nut fibre refuse, as a protection against frost. In forming a border on heavy soils, excavate sufficient soil to admit of fifteen inches of rubble, such as broken bricks or stones, being placed underneath the soil, to keep the plants dry and comfortable during the winter season. They also produce an exceedingly pretty effect planted on rockeries and rooteries. Rather shady ledges, where they will not be killed out by rampant growing subjects, should be selected as the most suitable for insuring a vigorous growth and an abundant display of flowers.

They may also be cultivated most successfully in pots, in a cold frame, if so desired. The pots must be proportionate to the size of the corms, and be well drained. A mixture of turfy loam, fibrous peat, and leaf-mould, in equal parts, will form a most excellent compost for them. In potting the corms, bury them just below the surface, and maintain the soil in a moderately moist state until they begin to push the foliage up freely. The supply of water may then be increased; but at no stage of growth must the plants have an excessive supply of moisture at the roots.

The names and descriptions of the hardy species are as follows :—

C. Atkinsi.—A neat grower; foliage of medium size, beautifully

marbled on a dark green ground; flowers white with crimson centre. The variety of this species known as *carneum* has flesh-coloured flowers, and *roseum*, rose-coloured flowers.

C. coum.—A moderate grower; foliage, deep green; flowers, purplish red. *Album* is a pretty white variety, and *carneum*, an attractive form, with pale rose flowers.

C. Europæum.—A pretty species, producing a profusion of small sweet-scented, rosy-red flowers in the autumn.

C. hederæfolium.—A very beautiful species, remarkable for its prettily marked foliage; flowers, bright rose, and freely produced; autumn flowering.

C. græcum.—A handsome spring flowering species, with beautifully marked foliage; flowers, bright red, and slightly fragrant.

C. ibericum.—A pretty, neat-growing species, producing a profusion of red flowers.

C. vernum.—An attractive species in the way of *C. coum*, but with marbled foliage.

NOTES ON NEW BOOKS.

Ewart's Land Improver's Pocket-Book (Lockwood and Co.) is an admirable compilation of elements, formulæ, and tables, illustrative of the operations of surveying, draining, planting, building, the estimation of rental values, tithe charges, and the rest of the mathematical and arithmetical difficulties that have to be encountered in the management and improvement of landed properties. Those who need such aid as a carefully-prepared book of reference is calculated to afford, may order this work with perfect safety. It is the more useful, because well got up in a size suitable for the pocket, with flexible covers, and the corners nicely rounded for the comfort of the carrier.—The new edition of *Haydn's Dictionary of Dates*, in course of publication by Messrs. Moxon and Son, will be the best standard work of reference on matters of history, chronology, and general statistics hitherto produced, and, as it is corrected up to August, 1873, it comprises particulars of the most important events of modern times, such as the history of ocean telegraphy, the Franco-German War, etc., etc. The work is being issued in shilling parts, each containing 48 closely and well-printed pages.—*Sowerby's British Wild Flowers*, now publishing in monthly parts by Mr. Van Voorst, is at once a marvel of cheapness, and the most compact and comprehensive British Flora. The descriptions are extremely brief; but, nevertheless, convey an abundance of information, and the figures are on a small scale, but are admirably drawn and coloured, so as to afford all the help that pictures are capable of in the identification of plants. In every three shilling part there are 80 figures, beside letterpress. Thus, the figures are provided at less than a halfpenny each, and if we reckon the letterpress as proportionately valuable, the cost of the figures is reduced to a farthing

each.—*The Pictorial World* continues its bright course with the courage it evinced in starting, and is the most welcome amongst many periodicals devoted to the advancement of art. Every number contains some superb examples of wood engraving, besides instructive and entertaining illustrations of events, discoveries, and the news of the day. The establishment of a first-class illustrated newspaper, at the low price of threepence, must be regarded as an important event in the history of literature.—*The Garden Oracle*, for 1875, is announced to contain a great variety of new matter of interest and importance to amateur horticulturists, and amongst other things there is a new and carefully prepared selection of the very best hardy herbaceous plants.



INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, BULBS, ETC.

SELECTIONS OF CHOICE HARDY
FLORISTS' FLOWERS.

*Best twelve marked thus †. Best six or less
marked thus *.*

ANTIRRHINUMS—30.—Admiration, Artist†, Avenir, Brightness, Boliaver†*, Bridesmaid, Clipper, Clara, Charming†*, Crown Jewel, Dauntless, Delicatum†*, Europa, Figaro†, George Gordon†*, Gladiateur†, Garry, Harlequin, Hero, Jules Edouard, Mrs. Wilkinson, Orange Boven, Prince Alfred†, Queen of Crimsons, Rosy Morn†, Trompe. Snowdrift†, The Rival, Undine†*, William Robinson.

AURICULAS—24.—*Gr. E.*: Campbell's Admiral Napier, Headly's Alderman Wisbey†, Leigh's Colonel Taylor, Dickson's Duke of Wellington, Page's Champion, Hudson's Apollo, Oliver's Lovely Ann†, Cheetham's Lancashire Hero†*. *Gy. E.*: Headly's Alderman Charles Brown, Headly's George Lightbody†, Turner's Colonel Champneyst†*, Turner's Competitor, Chapman's Maria†, Reid's Miss Giddings†*, Fletcher's Ne Plus Ultra, Lightbody's Robert Traill†*, Lightbody's Sir John Moore†*, Headly's Stapleford Hero. *W. E.*: Campbell's Robert Burns†, Heaps' Smiling Beauty, Smith's Ne Plus Ultra†*, Ashworth's Regular, Wild's Bright Phœbust.

AURICULAS (Selfs)—12.—Spalding's Blackbird, Headly's Cantab*, Turner's Cheerfulness, Turner's Charles J. Perry*, Turner's Master Hole*, Martin's Eclipse, Smith's Formosa*, Lightbody's Meteor Flag*, Martin's Mrs. Sturrock, Headly's Royal Purple, Lightbody's Lord Clyde*.

AURICULAS (Alpines)—18.—Bertha, Black Prince*, Brilliant, Etna*, King of Crimsons, Defiance, Eclipse, Field Marshal, George Lightbody, Jessie*, John Leech, Landseer*, L'Africaine, Mercury*, Novelty, Sydney*, Wizard, Wonderful.

CARNATIONS—30.—*Scarlet Bizarres*.—Admiral Curzon (Easom), Campanini (Turner), Captain Thompson (Puxley), Dreadnought (Daniels), Guardsman†* (Turner), John Norman (Norman), Mars† (Hextall), William Pitt (Puxley).

Crimson Bizarres.—Albion's Pride (Headly), Colonel North (Kirtland), Eccentric Jack† (Wood), Isaac Wilkinson† (Turner), Lord Goderich (Gill), Lamp-lighter (Wood), Rainbow (Wood), Rifleman (Wood).

Pink and Purple Bizarres.—Captivation (Taylor), Falconbridge*† (May), Fanny (Dodwell), John o'Gaunt (May), Masterpiece (Schofield), Princess Royal (Seeley), Purity† (Wood), Shakespeare (Puxley).

Purple Flakes.—Ajax (Hextall), Brunette (Puxley), Dr. Foster*† (Foster),

Earl of Stamford,† (Elliott), Florence Nightingale (Seeley), Jaques (May), Mayor of Nottingham (Taylor), True Blue (Taylor).

Scarlet Flakes—Annihilator*† (Jackson), Christopher Sly (May), Illuminator (Puxley), John Bayley (Dodwell), Mr. Battersby (Gibbins), Mrs. Holland (Hardman), Superb† (Ingram), William Cowper (Wood).

Rose Flakes.—James Merryweather (Wood), Lovely Ann (Ely), Mrs. F. Burnaby*† (Turner), Mr. Hextall† (Turner), Nymph (Puxley), Poor Tom (May), Rose of Stapleford (Headly), Sybil (Holmes).

TREE CARNATIONS (*for winter flowering*)—24.—Alice†, bright rose; Astoria, yellow, scarlet, and white; Beauty, pure white, pink stripe; Caliban, rose; Delicata, pure white, margined pink; Defiance, large crimson; Empress of Germany†; Indian Chief; King of the Belgians†; La Belle*†, white; Le Grenadier, scarlet; Hope, scarlet and crimson flake; Jupiter, scarlet; Marchioness of Westminster*, rose-pink; Oscar, yellow; Princess Christian*, bright pink; Proserpine†, scarlet; Queen of the Belgians*, white striped rose; Queen of Whites, white, a true clove; Souvenir de la Malmaison†, rose-pink, rosy flesh, very fragrant; Vandacl†, yellow self; Victor Emmanuelt, pure yellow, rosy crimson flakes; Royal Scarlet*†, scarlet; White Swan, pure white.

SHOW PANSIES—36.—*Selves*.—Arab, Captain Elder, Cherub*, Dux, Faust, George Keith, Indian Yellow, Locomotive, Miss Ramsay, Miss Muir, Mrs. Knight, Pluto*, Shirley Hibberd*, Snowdrop. *Yellow Ground*.—Acme†, Captain Sheriff, Thomas H. Douglas†, George Wilson†, J. B. Downie†, John Downie, Mrs. Russell, Prince of Wales, Thomas Martin†, Walter McKay, W. Martin. *White Ground*.—Alice Downie, Hon. Mrs. Menzies, Lady Lucy Dundas, Lavinia*†, Mabel, Mrs. Bunyard, Mrs. Galloway, Mrs. Hopkins†, Princess of Wales*, The Queen*†.

FANCY PANSIES—24.—Agnes Laing†, Black Prince†, Buttereup, David Mitchell, Earl of Rosslyn†, Indigo, James Neilson, J. B. Downie*, Lady Ross†, Lady Middleton, Miss J. Kay†*, Mrs. B. Brook†*, Mrs. Laird, Mrs. R. Dean, Mrs. Neilson, Mrs. H. Northcote†, Miss F. Hope, Pandor†, Picotee, Princess Alice, Rev. H. H. Dombraint*, Thomas Grainger, William Baird, William Hay*†.

BEDDING PANSIES—12.—Aurora, Bedford Yellow*, Blue King*, Blue Gown, Cliveden Blue*, Cliveden Purple, Cliveden Yellow, Dean's White Bedder, Great Eastern*, Mrs. Shirley Hibber†, Sunshine*, Ware's Cloth of Gold.

PENTSTEMONS—20.—Apollo†, A. St. Clair, Arthur M'Hardy, Arthur Sterry, Auror†, Azurea elegans†, Bessie Anderson, Black Knight†, Bridesmaid, Bons Villageois†, Colonel Long†, Delicatissima, Gavin Greenshield, George Sand†*, Grandis, Harry King†, James Adams, James Rothschild, John McPherson, John Pow, Magenta*†, Miss Carnegie, Mrs. Moon, Mrs. A. Sterry, Lady Coutts Lindsay, Le Khedive, Mons. Alfred Robert, Mrs. Peter Cator, Polly King, Pauline Dumont, Queen Victoria, Rev. C. P. Peach, Staustead Rival†*, Sunrise, Stephen Wilson, W. E. Gumbleton*†, W. M. Alexandert, White Beauty, William Blackwood†, William Thom.

PHLOXES—(*Early-flowering*)—18.—Archibald McKeith*, Duchess of Athol*, Duchess of Sunderland*, Her Majesty, James Laing, John Watson, Lady Abercromby, Mrs. Laing, Princess Louise, Purple Emperor, Mrs. George Wilson*, Mrs. Baillie, Mrs. Hunter, Princess of Wales, Robert Hannay, Thomas Ormiston, William Shand, William Paul*.

Late-flowering—48.—Ada Louisa, Amabilis, A. F. Barron, Aurore Boreale, Adelina Patti, Chauzy†, Comtesse de la Pannouse†, Countess of Breadalbane, Deliverance, Dr. Masters, Duke of Sutherland, Edith, Etoile de Neuilly, Flora MacNab, Foardroyant, Liervallit, Lothair, Madame Donagett*, Madlle. Aubert Turenne, Madame Barillet, Madame A. Verschaffelt†, Madame Marie Saison†, Madame Rœmpler, Miss Menotti†, Miss Robertson, Mrs. Dombraia, Mrs. Whitehead, Mons. W. Bull, Mons. Conrad†*, Mons. Malet, Mons. Veitch, Mons. H. Low, Mons. Marin Saison†*, Mons. C. Turner, Mons. Linden†*, Mons. G. Henderson, Mons. Taillard, Prémices du Bonheur, Princesse Louise, Professor Koch, Roi des Roses†*, Shirley Hibberd†*, Queen Victoria, Queen of Whites†, Richard Wallace, Souvenir de M. Poitevin, Venust, Virgo Marie.

PICOTEES—24.—*Heavy Red edge*—Colonel Clerk (Norman), Countess of Wilton (Holland), J. B. Bryant*† (Ingram), Juliana (Turner), Leonora (Fellowes), Princess of Wales†* (Fellowes).

Light Red edge.—Ada Mary (Smith), Agnes (Taylor), Miss Turner (Taylor), Mrs. Keynes*† (Fellowes), Mrs. Hornby† (Turner).

Heavy Purple edge.—Alliance (Fellowes), Admiration (Turner), Chanticleer† (Fellowes), Nimrod (Fellowes), Norfolk Beauty†* (Fellowes), Picco (Jackson).

Light Purple Edge.—Edith*† (Fellowes), Lady Elcho (Turner), Mary (Simmonite), Mrs. Little (Hooper), Mr. Tutton† (Payne), National (Kirtland), Princess of Wales (Kirtland).

Heavy Rose edge.—Edith Dombrain† (Turner), Mrs. Fordham†* (Turner), Gem of Roses (Gibbons), Gipsy Bride (Wood), Princess Alice (Kirtland), Scarlet Queen (Wood).

Light Rose edge.—Ethel† (Fellowes), Lucy (Taylor), Maid of Clifton (Taylor), Miss Sewell (Kirtland), Miss Wood (Wood), Mrs. Allcroft†* (Turner), Mrs. Fisher (Taylor).

PICOTEES, PERPETUAL-FLOWERING.—Ascot Giant, Ascot Yellow, Delicata, Deloche, Prince of Orange.

PINKS (SHOW)—36.—Agnet, Bertram†, Blondin, Charles Waterton, Devise, Dr. Maclean, Dr. Masters†*, Edwin, Elcho†, Emily, Eustace, Excelsior, Godfrey†*, John Ball, Lady Craven†*, Lady Clifton, Lizzie, Lord Kirkaldie†, Lord Herbert, Lord Lyons, Marion, Maud, Mildred, Mrs. Maclean, Mrs. Waite, President, Perfection, Picturata, Princess of Wales†, Prince Frederick William†*, Rev. G. Jeans†, Shirley Hibberd†*, Superb, Scarlet Gem, Victory.

PINKS (FORCING)—6.—Anna Boleyn, Coccinea, Lady Blanche, Lord Lyons, Mrs. Pettifer, Paddington, Rubens.

VIOLAS, BEDDING.—Blue Bell*, Corisandre, Enchantress, Golden Perpetual*, Magnificent, Lothair, Lutea major*, Perfection, Princess of Teck, Queen Victoria*.

HORTICULTURAL AFFAIRS.

ROYAL HORTICULTURAL SOCIETY.—At the Exhibition of Autumn Flowers and Vegetables, held at South Kensington on Wednesday, September 2, the competition in the majority of the classes was very spirited. Consequently, Asters, Dahlias, and Gladioli were shown largely, and in excellent condition. Hollyhocks were very sparingly represented, the disease which has attacked these flowers having wrecked so many of the best collections in various parts of the country. The display of vegetables was of an exceptional character, both as regards the number of entries and the quality of the various productions. The Potatoes were especially good, the tubers being mostly of splendid quality. The leading exhibitors of Dahlias were Mr. Keynes of Salisbury, and Mr. Turner of Slough. The finest Gladioli came from Messrs. Kelway and Son, Langport, and the Rev. Lord Hawke, Willingham Rectory; and of Potatoes, Mr. R. Dean, Ealing; Mr. Miles, Wycombe Abbey; and P. McKinley, Esq., Beckenham.

PELARGONIUM SOCIETY.—On the occasion of the R.H.S. Autumn Show, September 2, a meeting was held for the purpose of taking into consideration the desirability of forming a society for encouraging the cultivation of zonal and other Pelargoniums. The chair was occupied by Mr. Webb, Member of the Council of the R.H.S., who briefly stated the object for which the meeting was called. A discussion arose as to the name the society should bear, and it was ultimately resolved that it should bear the simple designation of "The Pelargonium Society," and that it should embrace in its operation all the classes of garden pelargoniums, with a view to their improvement, and to determine the relative merits of species and varieties. A provisional committee was formed, and a list of subscriptions announced, amounting to nearly forty pounds. It was considered prudent to postpone the settlement of the rules. Some time in the summer of 1875, competition will be invited at South Kensington as follows:—For 12 Florists' Zonals, in eight-inch pots, first prize £8, second prize, £5. For 12 Decorative Zonals, in eight-inch pots, first prize, £8, second prize, £5. For the best collection of 30 distinct Zonals, irrespective of class, in six-inch pots, first prize, £6, second

prize, £4. It is required in every case that the name of the variety and the name of the raiser should be attached to every plant.

CRYSTAL PALACE FRUIT AND GLADIOLI SHOW.—The exhibition of Fruit and Gladioli at the Crystal Palace, on September 8 and 9, was fairly successful, although not equal in extent to similar exhibitions of previous years. Several excellent collections of fruit were staged. Pine-apples were exceedingly good, as were also the Muscat and black Grapes. Of the out-door fruits, including Peaches, Nectarines, Plums, Cherries, Apples, and Pears, there was an abundance, and all the prizes were exceedingly well contested. Gladioli were fairly shown by the usual exhibitors, and made a capital display of themselves, although the flowers appeared to be wanting in substance and the spikes in massiveness, as compared with the finest examples exhibited in previous years. No prizes were offered for Dahlias, nevertheless Mr. C. Turner, of Slough, and Mr. Coppin, of Shirley, near Croydon, contributed several stands of magnificent blooms in the miscellaneous class. The Cottagers' prizes for vegetable were all warmly contested, and the result was a capital display of Potatoes, Cabbages, Onions, and other esculents of prime importance in cottagers' gardens.

THE HONEY FAIR AND EXHIBITION OF BEES AND THEIR PRODUCE, held in the Crystal Palace on the same dates as the Fruit and Gladioli Show, was in every respect satisfactory and encouraging, and eminently creditable to all concerned in its production. The bee-hives and minor appliances and the samples of honey occupied a great space in the nave. Equally pleasing—and, in fact, the matter of first importance in respect of the results desired—the visitors manifested great interest in the apiarian portion of the exhibition, the systems and contrivances illustrated were carefully examined and criticised, and it was evident from the first that this was not only a vindication of apiarian science, but a congress also of apiarians. In addition to the exhibition in the nave, there was an experimental demonstration in the north corridor, where, in a space enclosed with glass, for the comfort and safety of the spectators, several experienced bee-masters operated on bees, in order to explain various important processes belonging to the higher departments of apiarian art.

THE SHIRAZ APRICOT is said by M. Carriere to be the best of all. It is not a handsome fruit, but the flesh is melting and sweet, and finely perfumed.

IRIS DECORA, which Mr. Bull has secured by means of seeds sent by Dr. Hance from Whampoa, is a remarkably interesting plant, and will be greatly valued for its large handsome flowers of a pure marine blue colour, or lilac shaded with violet.

OLD APPLE TREES.—The *New York Tribune* remarks that the Secretary of the Maine (U.S.A.) Board of Agriculture, in his late report, mentions an Apple Tree at York, that was brought from England 200 years ago in a tub, and was still bearing fruit in 1870; another, near Wicasset Bay, that was an old tree in 1805, but is still fruitful; another, in the town of Bristol, known to be over 200 years old, still bearing fruit, and other trees that yield occasionally from 25 to 65 bushels of fruit each.

THE STEMS AND LEAVES OF CONIFEROUS PLANTS.—In the last number of the *Annales des Sciences* M. Bertrand publishes the first portion of a lengthy paper on the comparative Anatomy of the Stems and Leaves of Coniferous Plants. M. Bertrand points out the relation between the species and their geographical distribution, the parallelism existing between the floras of the Old World and those of the New, as well as that between the floras of the Australian islands and of South America, and enters into details with reference to the comparative anatomy of the species in almost all the genera of the order.

TABLE DECORATIONS.—We cut the following from the entertaining "after dinner" gossip of the *Pictorial World*: "Table decoration is receiving more and more attention in society. Lord Porterhouse tells us of a novelty which I commend to my lady readers. He says he dined the other evening at the house of a distinguished gentleman who has recently married a Russian lady. The table was entirely covered with moss—the fern-like moss which is plentiful in Covent Garden. There was the usual white cloth, but the only evidence of it was seen in that portion which hangs at the sides of the table. Flowers were profusely introduced, and the effect was altogether unique. His lordship says this is one of the most ordinary kinds of table decoration in the aristocratic houses of Russia."

TO CORRESPONDENTS.

NAMES OF PLANTS.—*A. D.*—The plant from which the long narrow leaf was taken is not a palm, but a dracæna. Its specific name is *Dracæna indivisa*. The two specimens of the height mentioned, if well furnished with foliage nearly to the rim of the pot, and in good health, would be worth in a nursery four or five guineas, but it is not probable that you will be able to obtain that sum for them. We cannot name the other plant without flowers.—*Ramo.*—No. 4, *Doodia caudata*; 5, *Nephrolepis tuberosa*; 6, *Pteris cretica albo-lineata*. We must have fertile fronds of the other kinds sent before we can undertake to name them.

CARNATIONS.—*E. Sellars* —For prices of carnations, picotees, etc., you had better write to Mr. Turner, Royal Nurseries, Slough. We avoid as far as possible recommending dealers, or naming prices.

VIOLET, COLEUS, ETC.—*Queenstown.*—Sow the violet seeds at once in a pot or pan, and keep in a frame or cool greenhouse, and plant out in spring. Any light rich soil will suit them. The coleus are usually wintered in a cool stove, the temperature of which does not go below 50° all the winter. A minimum of 45° they bear very well, but below that they lose their leaves, and become comparatively valueless. You had better keep the *Clerodendron* seeds until March, and then sow in peat.

LILIUMS.—*Young Gardener* will require for a set of nine for exhibition, *Auratum*, *Lancifolium rubrum*, *punctatum*, *album*, *macranthum*, *roseum*, *Japonicum*, scarlet martagon, *eximium*. The following may be added, but cannot be depended on to flower at the same time:—*Longiflora*, *Umbellatum*, double *Tiger*.

KEEPING BEDDING PLANTS.—*Young Beginner* would do well to throw the bedding plants away. We can only suggest that if he wishes to keep them, he must try his skill with them as window plants. We have no such plans of gardens as are inquired after.

Amelia.—Your plant is probably a Canna or Indian shot.

Flora.—*Baronne Hallez* is a crimson rose of large size and fine quality. The plant is a medium grower, and belongs to the section called *Perpetual*.

Woodlands, Edgbaston —Your plant is *Nerine sarniense*.

WATERING VINE BORDERS.—*Amateur Grape Grower.* — It is difficult to say "how often a vine border should be watered." In some places vine borders are never watered, and in others they must be watered frequently, or the vines would fail. Anyhow, the roots must be kept thoroughly moist from May to the end of August; and, during June and July, an occasional good soaking with liquid manure will be sure to do them good. If there is any fly on them, give a tremendous smoking, shut the house up, and next morning syringe them liberally, and let them have plenty of air.

PLANTING OUT CAMELLIAS.—*F. S.*—Camellias may be potted or planted out in a conservatory border at any season, except when they are in bloom. When done flowering, and when done growing, are the seasons usually chosen by gardeners. As yours are poor and lanky, and the season is very far advanced, we advise you to plant them out at once, and not to cut them at all. Next season, thin away the buds if they make any, and prune them into shape, and keep them warm, shaded, and moist, and you will get breaks to fill up the blanks. It is too late now to obtain new growth, but if turned out, their roots will go to work in the new soil to prepare them for growth next season.

WEEDY ASPARAGUS BEDS.—*A. S.* — You can clean your beds of weeds at once, which we should advise you to do; but you must not remove the haulm of the asparagus until it is ripe and turns yellow, which will happen about the end of October.

CULTURE OF SHALLOTS.—*B. F.*—Yours are spoilt; they ought to have been taken up when the tops died down in July. Shallots like good holding friable loam, enriched with thoroughly rotten dung. This should be thrown up in ridges early in the autumn, to give it an opportunity of becoming thoroughly pulverized by the early frost. In February the soil should be levelled down, and the shallots planted in shallow drills, twelve inches apart, and about four or six inches apart in the rows. The soil should be frequently stirred with the hoe, to keep down the

weeds. When the tops turn yellow, they should be pulled up, and, after lying a few days on the surface to ripen, be stored away in a cool and dry place.

— **PROPAGATING GNAPHALIUM LANATUM.**—*S. K.*—Cuttings of this useful edging plant ought to have been struck in August; but you can put them in now with every chance of success. They will strike in a cold frame or under a bell-glass in your greenhouse, but with a mild bottom-heat they will root much quicker. Treat exactly as you would verbenas, and if you place the young plants in warmth early in the spring, you will be able to have any quantity of cuttings.

BUILDING AND PLANTING GARDEN WALLS.—*W. G. F.*—The wall can be built nine inches in thickness, with piers about every six feet, or fourteen inches in thickness without piers. There is very little difference in the expense, and in the last-mentioned wall you will have a flat surface for training on both sides. It is impossible to train trees in a creditable manner with piers every six feet, and considering the cost incurred in the erection of a substantial wall, both sides ought to be made the most of. With respect to the cost of enclosing two acres of garden with a wall twelve feet high, you had better obtain an estimate from a respectable builder residing in your neighbourhood. We should plant principally peaches and nectarines on the south aspect, with a few early cherries and pears; on the west aspect, pears; on the east, apricots, with a few early plums; whilst the north aspect will grow good Morello cherries and plums. It is not well to grow too many peaches and nectarines, for they last in season such a short time. We should occupy as much space as possible with pears, for with a judicious selection of varieties, they can be had on the table from August until the following spring. We should advise you to have a good coping, either fixed or movable, for it will be a wonderful protection to the bloom in spring.

J. A. B.—The specimen was dried up, and, consequently, we are unable to identify it.

STORING FILBERTS.—*M. B.*—There is no better way of preserving filberts than to put them into glazed earthen jars, which have tight-fitting lids. They should be put in with their husks on, in a quite dry state, the jars should be quite full, the lids should fit close, and the proper place for the jars is in a store-closet in a dry room.

WINTERING CALADIUMS.—*S. S.*—If they are still growing, dry the plants off as soon as you can with safety. When the foliage is nearly or quite dead, lay the pots on their sides in a warm corner of the stove; a temperature of 50° is the lowest that you must keep them in through the winter; ten degrees higher would be better, as we have repeatedly proved. Let the tubers remain in the pots until you start them. If you are short of room, you can shake them out of the pots, and place the tubers in smaller pots, and then fill up with dry sand. They will do either way, provided they are kept dry.

SHRIVELLED GRAPES.—*Amateur Grape Grower.*—The fault of your grapes is, that at a certain stage their growth is arrested and they then become unsightly. We have no hesitation in tracing the cause to the roots of the vines, and the remedy will be found in a renewal of the roots, and an improvement of their condition. It is highly probable that the vines are in a damp, cold border, and that, in consequence, the roots are not able to keep pace with the demands upon them by the leaves of the vine; and thus, the supply of sap being restricted, it is impossible for the fruit to swell to proper dimensions. Knowing nothing of the circumstances in which the vines are placed, we can only remark upon the case in this general way, and advise our correspondent to consider how to place the roots in a condition more likely to favour the full development and ripening of the crop.

WINTERING CANNA ROOTS.—*A Young Gardener.*—You can take them up, and store in a cellar or outhouse, or under the greenhouse stage. In either case, keep them from getting wet, and put a little dry soil or sand over them, to prevent their becoming dried up. You can also allow them to remain in the beds where they are now growing, without any danger of losing them, if you prefer to do so. The beds must be covered with some kind of protecting material, to prevent the frost getting to them. Long litter, cocoa-nut refuse, or dry leaves are all good. We, however, prefer the latter. Lay them on the bed a foot or eighteen inches in depth, and cover with soil to a depth of about four inches. If you leave them in the ground, you will be perfectly astonished at the growth they will make next season.

to prevent the roots round the outside of the ball being injured by an excess of heat, or by drought. Soft water should be used at all times, and be supplied in sufficient quantities to maintain the soil in a moderately moist condition. During the summer season, when the plants are in full growth, rather liberal supplies will be found necessary, but at other times it must be administered with some degree of caution. The plants must not suffer from dryness at the roots at any season of the year; and should the soil from any cause become dust-dry, place the pot in a vessel of water and allow it to remain until the ball is thoroughly soaked.

As heavy rains, after the season's growth is completed, are injurious to them, remove indoors towards the end of August, and place in a dry and airy position in the greenhouse. Here they should remain all the winter, or until the time they come into bloom and are required for the conservatory. They do exceedingly well in company with heaths, azaleas, and other hard-wooded plants; and those who can grow these things successfully, will have no difficulty with the *Epacris*.

The eight undermentioned varieties will form a capital selection for those who do not require a large number of sorts:—

Butterfly, pure white, tinted rose, very free flowering and rather late.

Equisita, rosy pink; a free flowering and attractive variety.

Hyacinthiflora carminata, bright carmine, flowers large, and very freely produced; fine.

Hyacinthiflora alba, pure white; the best of its class.

Miniata splendens, scarlet, tipped with white, flowers very large, and produced in the most profuse manner; rather late in flowering, and by retarding may be had in perfection in May.

Sunset, bright red, tipped with pink; fine.

Vesuvius, reddish crimson, very showy and attractive.

Viscountess Hill, orange scarlet, very bright and free flowering.

HARDY PLANTS FOR EARLY FORCING.

BY THOMAS TRUSSLER,

Nurseryman, Edmonton, N.



IN the production of a thoroughly good display of flowers in the conservatory during the spring season, a goodly proportion of hardy plants forced into bloom will be found essential. In *Astilbe Japonica*, *Dielytra spectabilis*, and a few other subjects that will be mentioned, we have plants that are quite indispensable because of their attractive character, and the comparative ease with which they can be had in bloom early in the season. It is of course needful that strong crowns should be taken in hand, and those readers who have not had much experience in the preparation of plants for forcing, and whose gardens are small, will save themselves much anxiety

and labour, by purchasing in the autumn a sufficient stock of the subjects best adapted for forcing. They do not, when bought by the dozen, command an extravagant price, and sufficient for an ordinary conservatory will not cost a very large sum.

The hardy herbaceous plants best adapted for forcing are *Astilbe Japonica*, more generally known under the erroneous designation of *Spireæ Japonica*; this is one of the most valuable of hardy plants for forcing, and is now grown in immense quantities for Covent Garden Market. The foliage is of a deep glossy green and very elegant, and when surmounted with its feathery pure white inflorescence the effect is exceedingly good. *Dielytra spectabilis* is one of the most elegant plants in existence when properly grown. *D. spectabilis alba* is also very pretty, but as it is as yet expensive, it must be regarded as a novelty, and not more than one or two plants be grown. *Dog's Tooth Violets* are very pretty grown in pots; but they do not require forcing in the same manner as the other things; they bloom naturally rather early, and a moderate degree of warmth is sufficient to bring them into bloom as early as they are usually required. The varieties known as *Alba*, *Purpurea*, and *Rosea*, are all good, and tolerably cheap. *Giganteum* is a large growing form, with bright red flowers, but at present it commands a price too high to admit of its being purchased for forcing. The *Lily of the Valley* is one of the most beautiful and best appreciated of hardy plants for forcing. The strong imported clumps are decidedly the best, as they usually consist of from twelve to eighteen crowns, from each of which may be expected a well-developed flower-spike. There are two variegated varieties, and both are very pretty, and can have a hearty recommendation. The gold-striped, which is known in the catalogues as *Convallaria majalis fol. var.* is exceedingly beautiful, whether in bloom or not; it is in fact one of the prettiest ornamental leaved plants of dwarf growth we have. The other variegated form is known as *C. majalis marginata*, and has golden margined leaves. The *Solomon's Seal* is very graceful in growth, and will be found useful for the embellishment of the conservatory, and for dressing vases and epergnes. The long graceful shoots taken off and inserted in rather tall trumpet-shaped glasses, have a most elegant appearance, and are, when on the dinner-table, usually much admired. As it grows freely in a shaded corner, and requires little or no attention, the purchased plants after they have been forced should be planted out in a spare corner to insure a stock for subsequent seasons. When cut flowers are in request in the early part of the season, it is a very good plan to lift large clumps and pack them close together in shallow boxes, and then place them in the forcing pit. One or two boxes will yield a large number of sprays, which will be found most useful for decorations. *Lachenalia quadricolor* and *L. tricolor* are also exceedingly beautiful, as the brightly-coloured flowers are relieved with prettily marked leaves. Of these, about half-a-dozen bulbs should be put in pots five or six inches in diameter; after they commence to push up their flower-spikes, and are removed from the forcing-pit, it is an excellent plan to stand the pots in saucers containing a little water. *Primula*

coriarioides amana and its varieties are most valuable for early flowering, and if lifted from the open ground and potted at once, they will bloom superbly next spring. They will not require forcing, as by wintering them in a cold pit, and placing them in a warm corner of the greenhouse, or in a warm pot, when they commence to make new growth, they will bloom rather early in the spring, and add very materially to the general effect. The more recently introduced *Primula japonica* is also effective when grown in pots, and bloomed under glass. This also blooms early without forcing. The lovely *Spiraea palmata* is remarkably effective when forced, and with ordinary care can be grown to a large size in two or three years. It should be purchased and grown a year at least before it is forced, as the small plants usually supplied are not of sufficient size to pay for forcing the following spring.

Five or six inch pots should be used according to the size of the clumps, and, as far as practicable, the smaller of the two sizes should be employed. It is not needful to have more than half an inch space between the pot and the roots, but there must be space enough for a little soil to be put between the roots and the sides of the pot. In preparing the pots, place a few crocks in the bottom, and cover with a little of the roughest part of the compost, then put a handful of soil upon which to rest the roots, and proceed to fill all round with soil; and in doing this, press it firmly and regularly with the potting-stick, which may be made of a piece of lath. It is necessary to press the soil regularly to prevent the water running away quickly down one side. As a rule, the crowns of the Lily of the Valley, Dielytras, and other things of a similar character, should be just covered. It is not necessary to prepare a special compost, as any light friable stuff will do for filling the pots with. After the potting is completed, place them in a pit where they can be protected from frost until they are transferable to the forcing-pit. All the plants of which mention has been made may be forced most successfully in a pit filled with leaves or manure, or a mixture of both; or they may also, of course, be forced in a house or pit heated with hot water. Even in pits furnished with a service of hot water pipes, it is a good plan to make up a bed of fermenting materials, in which to plunge the pots, as the warmth of the soil encourages the roots to push out freely, and it need hardly be said that the growth is, as a rule, more satisfactory when a healthy root action is insured previous to the development of foliage and flower stems. Newly gathered leaves are better than manure, because the heat is steadier and more lasting. Spent hops as procured from the brewery are also most useful, as they give off a steady heat, and where they can be procured at a cheap rate, as is frequently the case in the neighbourhood of large towns, they can be employed with advantage. They are used largely by the market-growers, and better evidence of their value could not well be brought forward. If the bed is formed with stable manure a thermometer should be inserted in it, for if the heat is much in excess of 85°, a danger will exist of the roots being injured. If the bed happens to be too hot, stand the pots upon it and plunge

when the heat has declined sufficiently to admit of its being done with safety. They can be plunged into either leaves or hops at first, as there is no danger of the heat rising high enough to do any harm. The soil must be kept in a moderately moist state until the plants begin to grow freely, and then more liberal supplies of water will become necessary.

As they begin to come into bloom, remove to cooler quarters; keep rather close at first, and then gradually harden them off sufficiently to allow of their being placed in the conservatory or drawing-room without any risk of their suffering from cold. The *Dielytras* must be kept rather near the glass to insure a steady growth, for when forced at a considerable distance from the glass, they become drawn and have an objectionable appearance. The *Astilbe* must, after it has made considerable progress, be placed far enough apart to afford room for the development of the foliage in a natural manner. When in the conservatory, the last-mentioned should, like the *Lachenalias*, be placed in pans of water, for they require an abundance of moisture, and if allowed to become dust dry, the foliage assumes a yellowish appearance, at the edges, and the plants become less attractive than they otherwise would be.

Those who intend forcing two or three batches of plants, should make up a bed at once; but if one lot is considered sufficient, the best course will be to pot them without delay, and make up the hot-bed early in January.

NEW ROSES.

BY GEORGE GORDON.



THE past season has been by no means favourable to the production of first-class roses, and at the earliest summer exhibitions the stands of some of the most famous growers were filled with blooms which in more favourable seasons would not have been considered presentable. This being the case, it behoves us to speak somewhat tenderly, and with a proper degree of caution, of some of the more recent introductions. If a large number of the best established kinds have failed to produce properly developed blooms, it would be unfair to speak too harshly of the new varieties which have not come up to our expectations. Even with the assistance of the most favourable weather, it is difficult to arrive at correct conclusions respecting the merits of any variety the first season, unless, as is so frequently the case, it is so bad as to leave no doubts as to its inferiority, or happens to be so good as to at once present unmistakable proofs of its merits. There can be no doubt the French raisers do send us every year a large number of most worthless varieties, and the prudent amateur who has very little money to spare in the purchase of new flowers, should not buy any of the French roses until an opportunity has been afforded in this country for competent

critics to give their opinions on them. Every year some thirty or forty varieties are sent over, and of these not more than three or four are really first-class, and to buy at random is to incur the risk of wasting money. In buying English-raised roses the case is altogether different, for before a raiser in this country ventures to offer a new variety, blooms or plants are submitted to the criticism of the rosarians at the public exhibitions. Indeed, were this not to be done, it is questionable whether it would be purchased by the trade, although there is no hesitation in sending orders for the large number of new varieties which the French raisers offer.

Relative to roses, the term "new" must be interpreted in a liberal manner, to allow of mention being made of varieties which have been in commerce two or three years, but which are as yet not so generally known as they deserve to be. Taking some of the newest hybrid perpetuals first, we have *Princess Beatrice*, a very beautiful light rose. *Annie Lawton* is another good globular light rose, but the petals are wanting in substance, and when the flowers are exposed to rough weather, the outer petals have a washed out appearance. *Captain Christy*, one of this year's roses, may be regarded as one of the best of the series of which it forms a part; the flowers are delicate flesh, with pale carmine centre, and the colouring altogether is very distinct and pleasing. Another good light rose of this year is *Diana*, a fine large cupped flower, of a bright pink colour; this is of special value for garden decoration, as it has a vigorous habit, and the flowers are produced until quite late in the autumn. *Peach Blossom* also claims attention as being a most valuable addition to the list of light roses; for the flowers are of a pleasing shade of delicate pink, and of good form. *St. George* is a fine dark variety; the flowers deep crimson, large, full, and of most excellent form; presenting in the latter respect a striking contrast to some of the dark flowers we have of late received from our friends on the other side of the Channel. *Reynolds Hole*, is perhaps hardly equal to some of our finest dark roses; but the flowers are of average size, the form good, and the colour rich maroon crimson, and as it may improve on further acquaintance, it should have a place in the rosery. *General Von Moltke* is of English extraction, and is described as possessing all the good qualities of a first-rate rose, whilst being of the most brilliant scarlet; but as yet I have had no opportunity of seeing it, neither have any of my friends, and I am therefore unable to say anything about it. *Baron de Bonstetten* may be described as an improved *Monsieur Boncenne*, and therefore a most desirable acquisition; the flowers are larger and fuller, the growth is more vigorous than of the variety to which it bears a close resemblance. *Abbe Bramere* is described in most of the catalogues, as being of fine form, but in my opinion the flowers are too flat and too coarse to be considered anything but first-rate; it is, however, a good garden rose, for the colouring is bright and decisive, and the flowers are borne in large trusses. *Etienné Levet*, a fine rose, with reddish carmine colour, has made its way to the head of the list of exhibition varieties, and it may also be regarded as one

of the best for garden decoration, for it is vigorous in habit and free flowering, as well as producing large handsome flowers. Another good rose of 1872, the year in which the four last-mentioned varieties were distributed, is *Francoise Michelon*, a beautiful flower, the colour clear rose, the reverse of petals silvery; this also is an excellent garden rose. *Madame Lacharme* is in a certain sense disappointing: the flowers are not pure white, and even with a dozen or so of plants there is a difficulty in obtaining a really first-class bloom. As a blush rose when grown under glass, it is simply superb, but as a garden flower it is quite surpassed by *Perle des Blanches*, which produces its pure white flowers in large clusters. *Coquette des Blanches* is another good pure white variety. *Ferdinand de Lesseps*, a fine dark rose, the colour crimson with violet shade, is rapidly gaining ground in the estimation of rosarians, as it well deserves to do, for it is one of the best roses of its colour for exhibition as well as for the garden. *Paul Neron* and *Marquise de Castellane* are rather too old to have a place amongst the foregoing, but they are so very attractive in the garden, as well as being valuable for exhibition, that they are well deserving of a place in the smallest rosery.

In turning to the new roses to be distributed during the ensuing winter and spring, I shall say nothing of the new continental varieties, of which lists have been received from the raisers. It is possible that *Bernard Verlon*, *Henry Ward Beecher*, *La Souveraine*, and *Souvenir de Ducher*, offered by Eugene Verdier, and Damaizin's *La Rosière*, Levet's *Antoine Montan*, and Liabaud's *Anne Blanchon*, may be first-rate, but it is purely a matter of chance, as so little reliance can be placed on the raisers' descriptions. The new English roses that have been offered, have been exhibited several times during the past season, and no difficulty whatever is experienced in speaking of their merits; *Duchess of Edinburgh*, a tea-scented variety, in the hands of Messrs. J. Veitch and Sons, is as remarkable for its distinctness, as it is for its superb qualities; the flowers which are of good form and produced abundantly, are of a deep rich purplish crimson, and therefore perfectly distinct from every other variety in the same class. As exemplified by the plants exhibited at the winter meetings of the Royal Horticultural Society, it forces well, and is consequently valuable for supplying winter flowers. The *Duchess of Edinburgh*, in the hands of Mr. H. Bennet, is a hybrid perpetual in the way of *La France*, but much superior to that justly famous light rose; the flowers are larger, fuller, and of better form, and the colour is several shades deeper. *Sir Garnet Wolseley*, a hybrid perpetual, now being offered by Messrs. Cranston and Mayos, is a high-coloured variety of great merit; the flowers are large, globular, and full; the colours brilliant crimson; it is first-class both for exhibition and the garden, as the growth is vigorous and the flowers stand out boldly. *Crimson Bedder*, in the hands of this firm, belongs to the same class as the preceding, and is remarkable for its floriferous character and brilliant colour, and will be most valuable for planting in masses in the flower garden. *Climbing Jules Margottin* is a scandent form of one of the best known of pink roses, and as it differs in habit only from the parent, it need

only be said that it is a valuable addition to the list of climbing roses. Mr. Charles Turner has also exhibited several remarkably fine seedlings, of which the undermentioned, belonging to the hybrid perpetual section, are especially deserving of attention, namely, *Rev. J. B. Camm*, a dark rose, rich in colour, and superb in form. *Royal Standard*, a light variety which without doubt is the most perfect rose we have, the flowers are as round as a ball, and very full. *Miss Hassard* is a pink variety, of the most attractive character, and although not equal in quality to the two preceding, it possesses sufficient merit to justify its taking high rank amongst garden roses.

To speak of the established varieties, would occupy more space than can be well afforded. Moreover, it is not needful to do so, for selections of the best roses arranged according to the purpose for which they are specially adapted, are given in the new edition of the "Amateur's Rose Book," of which doubtless the majority of the readers of the FLORAL WORLD possess a copy.

BEAUTIFUL SHRUBBERIES.

BY ALEXANDER M'KENZIE, ESQ.,

Alexandra Palace, Muswell Hill, N.



IN late years more attention has very properly been paid to trees and shrubs remarkable for their picturesque appearance or richly coloured leafage, and as a natural result the shrubbery borders in many gardens are beginning to present a more attractive appearance than in years gone by. There, however, yet remains much more to be done in this direction, for even in some of our best gardens the planting of the commoner kinds of trees and shrubs is carried on as if there was nothing better obtainable. This may, in a large measure, be attributed to a lack of knowledge of such things as the richly marked foliage of the golden hollies, the elegant plummy growth of the choicer *Retinosporas* and *Cupressus*, or the startling colours of the variegated Spanish Chesnut and the ash-leaved Maple. Then, again, there are a considerable number of the most beautiful flowering trees which are very sparingly planted, some of them being hardly known beyond the principal nurseries. People who have hitherto confined their observations to the shrubberies in private gardens which have been planted some years, would be quite astounded, were they to visit a first-class nursery, at the vast number of beautiful trees and shrubs available for the embellishment of the garden.

I would here pause to say that the garden should be planted in a quite different manner to the park. There are plenty of people who think that park and forest trees are the most suitable for the garden also; but nothing more directly opposed to the principles of garden decoration could well be advanced. In the garden we require materials of the richest description, which are also remark-

able for distinctiveness. The chief charm of park trees consists in the striking effect they produce in masses; but in the garden it is impossible to plant them in sufficient numbers to form good masses, and even were this formation possible, they would be too close to the eye to produce the desired effect. We, in fact, require the gardens to be furnished quite differently from the park and the forest, in precisely the same manner as we require the dining and drawing-room furniture to differ from that of our kitchen and store-room. In suggesting the planting of the garden with trees and shrubs most suitable to it, I am not advising an extravagant outlay of money, for many of the very finest in the respective classes can be purchased at a trifling increase on the cost of the most common.

It has been considered desirable to direct attention to the subject now, because the current month, and the one immediately succeeding it, form the best period of the whole year for carrying on planting operations. The soil is then in a capital working condition, and much warmer than it is after it has been subjected to a winter's rains, snows, and frosts. Trees and shrubs planted during the period here mentioned are, therefore, placed under conditions more favourable to the production of new roots and becoming thoroughly established, than others planted in the spring. Many of the failures which occur are entirely due to planting at the wrong season, and yet it is not often the fact strikes the planter that the failure has been caused by spring planting. This appears to be one of the hardest of all lessons relative to garden management, to learn; for, notwithstanding its being repeated in some gardens year after year, it most signally fails in teaching the planter where he is at fault. Spring planting cannot, in some cases, be avoided, and where it is carried out with skill, and the trees receive the attention most conducive to their becoming established afterwards, they do not suffer materially; but in small gardens, especially where very little time can be spared for watering in the summer, it should, if possible, be avoided. By planting in autumn, when garden work is slack, spring work, which brooks no delay, is not interfered with, a considerable amount of extra labour is avoided, and a chance exists of the work being executed in a better manner, because of other matters not pressing so heavily on the attention of those who have charge of it.

As I am anxious not to occupy too much space, I shall not say very much in reference to the planting operations. The roots of the shrubs and trees must, during the time they are out of the ground, be carefully protected from the air. As a rule, when they are received, they should be laid in by the heels in a spare corner, and then drawn out as required for planting. The roots do not suffer so much from exposure in the autumn as they do in the spring, but it is nevertheless desirable to avoid exposing them unnecessarily. Over-crowding is objectionable, because it necessitates, in the course of a few years, the lifting and re-planting of the whole of the shrubs. It is much better to plant the choicer shrubs at a proper distance apart, and then fill in with a few common things, which can be removed altogether as soon as the others require more space, or to

plant between the shrubs a few showy hardy herbaceous plants, to prevent the border having a naked appearance during the first two or three years of its formation. The variegated and green-leaved subjects should, as far as practicable, be distributed somewhat regularly over the border, and the variegated hollies be kept well towards the front, as they appear to greater advantage when supported by a background of green. The deciduous subjects, and the evergreens, must also be regularly intermixed, unless, as will sometimes be the case, it is desired to produce a distinct effect by planting groups of each. The standard trees must, of course, be planted towards the back of the border. In the formation of isolated groups in the pleasure grounds, the planter must be guided entirely by the situation, and the effect it is desired to produce in combination with surrounding objects.

In the case of newly formed shrubberies, the soil should be trenched over to a moderate depth previous to planting, but none of an uncongenial subsoil should be brought to the surface. When the shrubbery is improved by the addition of a few specimens at intervals, it will only be necessary to mark out a circle about twelve inches greater in diameter than will be requisite to spread the roots out horizontally, and then take out the soil to the necessary depth. The roots must be spread out quite straight, and be covered with the most friable soil obtainable from the surrounding surface. As the holes are in course of being filled in, the soil must be well trodden, and after the planting is completed put a stake to all that are of sufficient height to render support necessary. Puddling the roots, by pouring water over them as the soil is thrown into the holes, is a most objectionable practice. It not only involves extra labour, but it is hurtful to the tree or shrub, because the roots are enclosed in a soil of pasty mortar-like consistency, instead of in nice friable stuff, into which they can push without difficulty.

In the planting of gardens and pleasure-grounds, the under-mentioned subjects, which have, for the convenience of the planter, been thrown into groups, are by far the most preferable :—

DECIDUOUS TREES AND SHRUBS, FLOWERING IN SPRING :—The snowy *Mespilus*, *Amelanchier botryapium*, a most light and elegant tree, with white flowers. The common Almond, *Amygdalus communis*, is a capital companion to the foregoing, with pink flowers; this is one of the best known flowering trees, as it is so frequently met with in suburban districts. The double-flowering Peaches, *Amygdalus persica fl. pl.* and its varieties, are amongst the finest of early spring flowering trees; especially are they useful for planting towards the front of the border, and kept to a height of six or eight feet, as they produce their flowers before the foliage, and require the assistance of the leafage of other things to bring out the colours to the best advantage. The Thorns constitute one of the most valuable groups of flowering trees we have. They are remarkably well adapted for garden planting, as they have a very cheerful appearance during the autumn season, when loaded with their brilliant berries. The best of these are *Crataegus oxycantha coccinea plena*, *C. o. punicea*, *C. o. multiplex*, *C. o. rosea fl. pl.* The Laburnum, not-

withstanding its being common, is much too good to be omitted, even from a small garden, as its bright golden flowers have a most attractive appearance, associated as they are with the flowers of the lilacs, almonds, and hawthorns. The double-flowering Cherry and Plum, which are known as *Cerasus domestica* fl. pl. and *Prunus domestica* fl. pl., are useful, as they afford a pleasing variety, but they are not for a moment to be compared with the Siberian and other crabs. These latter are of the utmost value, for they bloom most profusely, and the flowers are exquisitely beautiful. The Siberian Crab, *Pyrus malus baccata*, is a small tree, remarkable for its floriferous character in spring, and for its attractive appearance when loaded with its small but brilliantly coloured fruit in the autumn. *P. malus floribunda* is also of small stature, and blooms even more profusely than the foregoing. The outside of the petals are of rich reddish crimson, and previous to the expansion of the flowers the branches have the appearance of being studded with highly-coloured fruit; and as they are white inside, the contrast of the white and crimson, while the flowers are fully expanded, is very pleasing. These are two of the finest foreground flowering trees we have, and as they are very cheap, they should be planted extensively. The double flowering Chinese Crab, *Pyrus spectabilis roseo-plena*, is a capital companion to the other two members of the same genus, for it blooms very freely, and is exceedingly beautiful. The Lilacs are too well known to need comment; but it is not so widely known as it should be that the two varieties of the common form, known respectively as *Charles X.* and *Dr. Lindley*, are the finest varieties. The *Persian Lilac* is also useful, especially for front lines. *Viburnum macrocephalum*, *V. opulus*, and *V. plicatum*, three distinct forms of the Guelder rose, or snowball tree, are useful for planting at the back of large borders. In addition to the foregoing, there are the Ghent Azaleas, which are of immense value for planting in the second lines of the choice borders.

DECIDUOUS TREES AND SHRUBS FLOWERING IN SUMMER:—The well-known *Althea frutex* claims attention because of its showy flowers and the lateness of the season in which they are produced. The double varieties are simply superb. The Althæas succeed uncommonly well in smoky districts, provided they are in a sunny position. *Deutzia scabra* is also useful, and can be strongly recommended. *Hypericum nepalense* flowers profusely throughout the greater part of the summer, and its large yellow flowers render it very effective. *Lycasteria formosa* is another useful subject. *Rhus cotinus* produces brownish foam-like flowers comparatively late in the season, but it is well worth a place in the most select borders independent of its flowers, for it has elegantly pinnate leaves, which in the autumn die off bright yellow and red. There is, again, that little known but handsome shrub, *Rubus spectabilis*, which has large purple flowers, and the shrubby Spireas, of which may be mentioned as being of especial value, *S. arifolia*, *S. callosa*, *S. corymbosa*, *S. Douglasi*, *S. Fortunei*, *S. Lindleyana*, *S. Nobleana*, *S. Reevesiana*, and *S. sorbifolia*.

CHOICE EVERGREENS.—*Arbutus unedo* and *A. u. Croomi* are

two fine dark-leaved subjects for select positions. *Aucubas* are too well known to need comment. They all succeed admirably in towns, and the green-leaved forms are the most effective. *Berberis Beali*, *B. glumaceum*, and *B. japonica* are valuable for planting in shady situations, and when the soil is tolerably good they grow freely and are highly ornamental. The variegated and the best of the green-leaved forms of the Box tree, *Buxus arborescens*, are useful for front lines, but they have a common appearance, and must be planted sparingly. The common Euonymus, *E. japonicus*, although one of the cheapest of evergreens, is still one of the best, for it grows freely in the most unsuitable situations, and in smoky districts it invariably presents a cheerful appearance, as even a slight shower is sufficient to wash the soot off the highly polished surface of the foliage. The variegated varieties, *E. latifolius aureus marginatus* and *E. l. alb-variegatus*, are valuable for the front row. The prostrate-growing species, *E. radicans variegatus* forms an excellent marginal band to a shrubbery, and it is also suitable for planting at intervals along the front. Of the Hollies it would perhaps be difficult to have too many. The common holly, *Ilex aquifolia*, is useful for filling in towards the back of the border, but for planting in more conspicuous positions, the choicer varieties alone should be planted. The most distinct and beautiful of those with green leaves are *I. a. crassifolia*, *I. a. femina*, *I. a. flava*, *I. balearica*, *I. glabra*, *I. Hodginsi*, and *I. Shepherdii*. The richest coloured forms with variegated leaves are the *Silver Queen* and *Golden Queen*. The *Laurestinus* is only adapted for nice warm soils, as under adverse influence it grows but slowly, and the flowers perish before expansion, and renders the plants unsightly. A pretty thing is *Skimmia japonica* for front lines in shady places; it is presentable at all times, but when loaded with its brilliant berries it is singularly attractive. It would be a waste of space to allude to the Laurels, the Phillyreas, and such subjects that are thoroughly well known; but it may be mentioned that *Ligustrum japonicum*, *L. ovalifolium* and *L. lucidum* are three fine Privets that can be strongly recommended.

DECIDUOUS TREES WITH DISTINCT FOLIAGE.—The following are useful for planting at intervals towards the back of broad borders and for planting in groups for producing distinct effects:—*Acer negundo variegata*, the well known "Ghost Tree," with pure white variegation. The golden-leaved Spanish Chestnut, *Castanea vesca variegata*, one of the most beautiful of golden variegated trees; the leaves are as richly marked as our exhibition Croton. The golden leaved Catalpa, *C. syriacæfolia aurea*, a variety of this fine old tree, with lemon yellow leaves, is also desirable. Purple-leaved nut, *Corylus avellana purpurea*, is useful for shrubberies, as it takes the place of the purple-leaved beech, which is much too large for borders. The Golden Oak, *Quercus concordia*, is a most richly coloured tree, and although it may in time become too large for shrubberies, it is too good to be omitted from this selection. *Robinia pseudo-acacia aurea* is also effective, but as it has a more vigorous habit than the Golden Oak it is not so suitable for gardens. The most beautiful of the trees with elegant green leaves, are the fern-leaved Alder, *Alnus*

imperialis asplenifolia, the cut-leaved weeping birch, *Betula alba incisa pendula*, the fern-leaved beech, *Fagus sylvatica asplenifolia*, and the Sumachs, *Rhus glabra*, *R. g. laciniata*, and *R. typhina*.

There are numerous other subjects well deserving of a place in these selections, but I think sufficient have been enumerated to show that there is no dearth of beautiful trees, and that it is quite unnecessary to fill the borders with the everlasting laurels, aucubas, and common lilacs.

NOTES ON NEW FRUITS AND VEGETABLES.



VENN'S BLACK MUSCAT GRAPE.—This has been well-shown and tasted by good judges during the past four years, and there cannot be a question as to its distinctive character and high quality. It was raised by T. T. Venn, Esq., of Sneyd Park, Bristol, and has been handed over to Mr. Dodds for distribution. The bunches are usually rather tapering, but well shouldered, the berries round or roundish oval, the colour intense black, with a thin bloom, the flesh slightly crackling, richly saccharine, with a decided muscat flavour. It will be a fine companion fruit to the Muscat of Alexandria.

PEASGOOD'S NONSUCH APPLE.—This is a fine fruit of the Blenheim type, raised by Mr. Peasgood, of Stamford, and now offered by Mr. Brown, of the same place. In size and style it combines the features of a Blenheim and a Nonsuch; it is extra large, somewhat oblate, the colour a fine yellow, richly streaked with red on the sunny side. The flesh is yellow, tender, juicy, with a sweet and sprightly flavour. It is scarcely a dessert apple, though quite equal to the Blenheim as a table fruit. In use from September to November, and may sometimes be kept until Christmas.

LADY HENNIKER APPLE.—This is a remarkably fine exhibition fruit, raised by Mr. John Perkins, gardener, Thornham Hall, near Eye, in Suffolk. The fruit is very large, roundish, with prominent ribs, which terminate in ridges round the eye. The skin is a fine yellow colour, with a flush of red and streaks of crimson on the sunny side. The flesh is tender, but slightly crisp or breaking, with a good flavour. It is a first-rate kitchen fruit, in use from October to February, and is admissible to the dessert, for which it is well adapted on account of its size and beauty.

COOLE'S SEEDLING APPLE.—This was raised by Mr. Coole, of Cheltenham, and is now for the first time offered by Messrs. Veitch and Son. It is of medium size, roundish, ovate, even, the colour rich yellow, with streaks of crimson on the sunny side; flesh very tender, juicy, with a fine flavour. An excellent dessert apple, in use from October to January.

WELFORD PARK NONSUCH APPLE.—This was raised by Mr. Rose, gardener at Welford Park, Newberry. It is of medium size, roundish, the colour pure lemon yellow on the shaded side, bright crimson on the side next the sun. Flesh exceedingly tender, with a pleasantly subdued sweet flavour and rich aroma. A first-rate dessert fruit, in use during November and December.

GILBERT'S GREEN FLESH MELON takes precedence of all others in the green flesh class, there being few to equal it in beauty, and none to equal it in flavour. It is of full medium size, with yellow skin and deep green flesh of the most delicious flavour.

THE SHAH is a remarkably fine red flesh melon, that took first place in its class at the last Crystal Palace Fruit Show, being shown by Mr. Webb, of Calcot. It is of medium size, perfectly round, with bright yellow skin, rather heavily netted. The flesh is light red, with a distinct breadth of green next the rind. It is quite melting, and of the finest flavour. We believe this to be the best variety of its class.

TURNER'S DR. MACLEAN PEA.—This is the most prolific pea of high quality in cultivation. It is a green marrow, rising three to four feet, branching freely, and therefore requires to be sown very thin. The pods are straight, rather narrow for their length, with a short beak, the colour a fine deep green, the peas averaging seven to nine in a pod. In quality it is equal to the very best of the green marrows, and it surpasses them all in productiveness, the branches being literally smothered with pods from top to bottom.

SUTTON'S GIANT EMERALD MARROW PEA.—This is a strong growing white wrinkled marrow pea of excellent quality, and highly productive. The pods are straight, with a slight beak of a light grass green colour, each pod containing six to nine large peas.

BARR'S NEW DWARF CABBAGE.—This is a member of the useful group of which Shilling's Queen and Ward's Incomparable were formerly representatives, but is in advance in point of quality and purity on those excellent types. We have grown it four years, and repeatedly compared it with the best varieties of its class, and always found it superior to them all. It is of compact growth, quickly produces solid globular or bluntly conical hearts of a large size in proportion to the very small extent of ground the plant covers. For autumn and winter use it is the best garden cabbage in cultivation.

SUTTON'S DUKE OF CONNAUGHT CUCUMBER.—This is a large fast-growing white spine variety of the most perfect proportions, and adapted for any and every purpose for which a cucumber can be grown, whether to supply the market or the table, or take the lead in an exhibition. It may be grown to any size, but is very fine in quality and proportion, at from 20 to 24 inches. We have made notes on a fruit 22 inches in length; it was of the same width through, neatly rounded, without the slightest prolongation of the nose, and absolutely without a handle, for it contracts to the stalk suddenly, and may be sliced to the very hilt. The skin is grass green, glossy, and shows a few inconspicuous white spines.

CUCUMBER BLUE GOWN is worthy of a note, although no longer a new variety. It has proved the finest black-spined cucumber out, and it will be no easy matter to beat it. Having grown it in the same house with a selection of varieties noted for high quality, we find it not only the handsomest of its class, but the most prolific; in fact, in productiveness it surpasses the Sion House breed, but requires just a little more heat. Blue Gown and Duke of Connaught are undoubtedly the two finest cucumbers in all the long list.

S. H.

COLLECTING AND PRESERVING MOSSES.

BY F. Y. BROCAS.

APPARATUS.



IN the midst of wintry desolation, how the eye is charmed by the vivid freshness of the tufts of emerald moss that beautify the clefts of the rocks, the decayed hollows of old stone-walls, and the buttresses of grey ruins. The study of mosses is attractive beyond the unique beauty of the plants, for every investigation of their structure reveals a wonderful system of vegetable mechanism, which under the microscope assumes the most varied and artistic forms, often as geometrical as snow-crystals, and very frequently being striking resemblances to familiar works of art. A simple Coddington lens is sufficient to determine most of the species, and we are invited to search them out by the romantic situations in which they are usually found; nay, they make dreary places romantic for a time, and carpet the earth with verdure when most other forms of vegetation have yielded to the rigours of winter. But the mosses are not exclusively winter plants; every month in the year presents us with species in growth and fruit, and there is always some such to be sought by the collector. They are, nevertheless, in their highest perfection in the midst of frost and snow, and at this season of the year the beginner need not search far to discover an abundance of the most interesting and beautiful species.

For collecting mosses, the following apparatus will be required:—1st. A waterproof bag, of oilskin, gutta-percha, or some such

material, for aquatic species. 2nd. A small-sized dinner-knife, which should be provided with a leather sheath as used for scissors. This, from its long, thin, and flexible blade, is far preferable to a pocket-knife, to peel mosses off trees, palings, walls, etc. 3rd. A small hoe-shaped blade, fitted to a short tube, like an elongated thimble, with

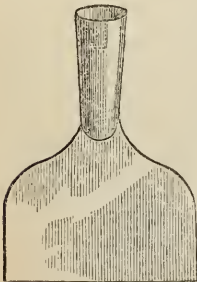


FIG. 1.—The Hoe-Blade.

a bayonet-joint. Any clever workman would suggest

the mode of constructing this instrument, which should be made to fit a walking-stick or umbrella, or it may have a handle made on purpose (Fig. 1). 4th. A few unglazed holland bags—say six—

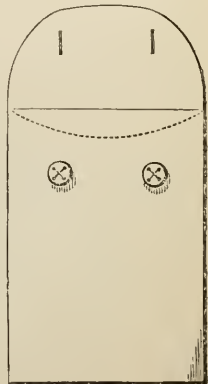


FIG. 2.—The Bag.

the largest six inches long and four wide; the smallest three inches long and three inches wide. These may be fastened with strings, but I prefer two buttons, as shown in the engraving (Fig. 2).

5th. *The Drying Press*.—This is formed of thin strips of wood, so arranged as to allow a free current of air to circulate between the layers of specimens and the papers placed between them, to facilitate the escape of moisture. The outside frames should be made with two stout cross-bars; the two outer strips one inch wide, the inner strip half-an-inch wide; the spaces between one-quarter of an inch; the inner frames to be composed of two layers of strip all half-an-inch wide, with quarter-inch spaces, with three cross-bars between, to which both layers

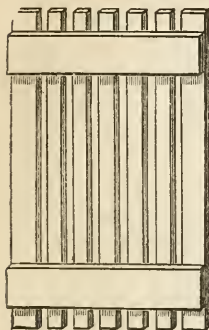


FIG. 3.



FIG. 4.

of strips are fastened by a screw passing through the hole; the end cross-bars one inch wide, the centre half-an-inch. Two

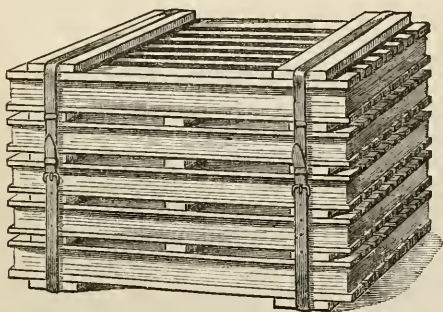


FIG. 5.—The Press.

light straps to pass over the cross-bars, to fasten them, will keep the whole together compactly when filled with specimens in process of drying (Fig. 5).

6th. An apron should be provided, made of oil- or American-cloth, twelve inches wide and twenty inches long, divided into partitions like a lady's needle-huswife, as represented (Fig. 6). This being waterproof, will keep the specimens clean and in good order; and, when the day's collecting is completed, can be rolled up, and carried home. I can say nothing in praise of

vasculums, as experience has taught me to avoid, when engaged in collecting, whatever is weighty or cumbersome; and if once the

species get mixed, the loose dirt spoils their beauty, and they can never be examined with that comfort, or preserved with that delicacy and beauty which are so characteristic of this order. In fact, as a rule, vasculums are well calculated to damage, not preserve, our most delicate plants.

7th. A pair of surgeon's dissecting forceps (Fig. 7) for examining minute specimens, and removing them from foreign objects, or the water in which they are immersed before drying.

The best books on mosses are those by the Rev. M. J. Berkeley and Mr. R. M. Stark, both

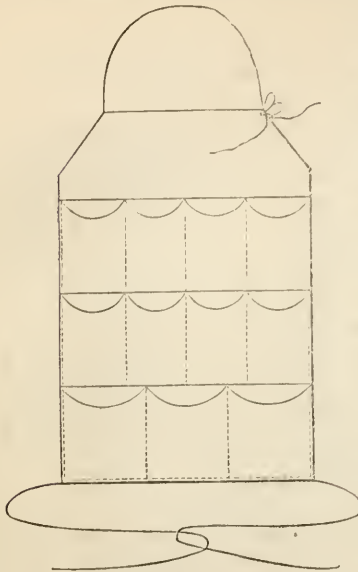


FIG. 6.—The Apron.



FIG. 7.

of which are published by Messrs. Reeve and Co., of London.

HOW TO COLLECT THEM.

A final preparation before starting is to be well protected about the feet and legs, for to get mosses you must not mind an occasional plunge into a bog. Choose a damp day, or, better, a clear day soon after a heavy rain, for it must be remembered that in dry weather many mosses, as *Polytrichum undulatum*, *Pterogonium Smithii*, and many of the Bryums, shrivel and become unsightly and much altered in appearance; but dry weather should not be considered as altogether unfit for collecting; for such as *Pterogonium Smithii* I consider improved by its curly appearance. In exploring for mosses, you will find *Hypnum riparium* abundant on the wooden gates of docks, mill-dams, hatches, etc.; *Fontinalis antipiretica*, growing in waving or feathery plumes from the bottom and sides of tolerably deep streams; the *Polytrichums*, abundant on heaths and sandy banks; the *Orthotrichums*, on stones and trunks of trees; the *Phascums*, forming patches of reddish-brown, or green, with yellow dots like seed, on the surface of the earth; *Weissia calcarea*, forming a blackish-brown stain on the surface of chalk in pits and railway-cuttings, and so minute as to compel the collector to chip off the surface of the chalk to get the specimens. The *Dicranums* and *Hypnums* may be found everywhere, from the

sides of our wells to the walls of the house, the tops of trees, and on lofty mountains. *Bryum argentum*, I am told, is found all over the world. It is abundant on Westminster Bridge, and on waste grounds where houses are building, or have lately been built, between the stones in unfrequented squares, and on many walls in and near London.

While collecting, the hoe-shaped blade attached to the stick or umbrella (Figs. 8 and 9), will be found especially useful for loosening *Orthotrichums*, and others that grow on trees above your reach. The specimens may generally be caught in the hand as they fall. It will also be useful for peeling them off the sides of walls, banks, etc.; and even on the ground it will often save stooping or kneeling where the soil is damp. Many may be reached and removed from under water, and from wet banks and the sides of deep ditches, with a piece of stout iron wire, crooked to form a hook, and tied on to the stick.

ARRANGING THE SPECIES.

The species should be kept separate as far as is possible, and should be stored in the apron or the bags, according to their relative sizes and delicacy of structure. On returning home, the first task should be to endeavour to name

them; if, however, we intend leaving the naming to some friend after the specimens are dried, we must put the date of collecting and district with each; and if we have more than we can readily dry, expose the others to the air of a warm room, thinly spread on blotting-paper; and, when dry, may be placed away and pressed at any future period, as will be explained presently.

DRYING IN THE PRESS.

Having picked the specimens over loosely, take a large sheet of stout brown paper, turn out the mosses upon it, and carefully remove from them any dead leaves and other rubbish that may be mixed with them, throw them into a basin of boiling water, and, with your drying-paper and press beside you, remove each specimen with a pair of surgeon's dissecting forceps, and place it on the



FIG. 8.—Blade on stick.



FIG. 9.—Blade on Umbrella.

paper with all the water it has absorbed. It requires the greatest care to prevent them shrivelling, even when pressed, especially if they are changed in a warm room. The press is a compact little apparatus, and very light, should be made of mahogany or cedar, nine inches long and five and a half wide, fastened by two light straps, as seen in the illustration (Fig. 5); it may stand on a footstool in front of the fire, or in any warm corner near the fire-place.

The specimens should first be changed in about twelve hours after having been put in, and again every second day until dry; and take especial care not to press too tight, or the beauty of many will be destroyed.

MOUNTING FOR THE HERBARIUM.

When dry, the duplicates may be kept between folded sheets of waste paper, the name of each (or what information may be deemed proper) written at the left-hand bottom corner; when mounted, it should be on the stoutest note-paper, largest size, and named as the duplicates.

Very little expense or skill is required in forming a moss herbarium; the plants being so small, little trouble is involved in mounting them, nor is it absolutely necessary to poison them, as there is little for insects to feed upon.

At present I have been addressing the amateur botanist, whose chief aim is to have a well-named collection. There may be others, however, whose chief delight is collecting, intending, as I before mentioned, to get some botanist to name them, or who intends to use them to form devices, or in the manufacture of fancy articles, for which they are most appropriate from the many delicate forms in which Nature has fashioned them. Besides this, the species most suitable for ornamental uses are abundant, and may be easily dyed in a great variety of colours. To use mosses for such purposes proceed as follows:—

COLLECTING FOR FANCY WORK.

Have a large unglazed-holland bag, choose the driest weather, collect as many as you require (or as many as you can find) of every species you meet with; put all together into the bag carelessly, rolling up in scraps of paper the Phascums and such as are removed with the dirt. On reaching home, if any are in the slightest degree damp, let them be dried thoroughly before a fire, or by exposure in a warm room. The collections of a day, week, month, or year, may be all packed together in a bag or box provided with partitions to separate certain districts or periods of collecting: they may be so kept for years if necessary, and the whole or any portion may be properly dried at any time that may be convenient. By maceration in boiling water, and pressing in the ordinary way, many will come out of the water in all the freshness and beauty of form they possessed when growing, years after collecting.

This is a most valuable and important fact for the tourist, as,

while travelling, many of the most handsome and delicate species, which are only found in certain localities, may be collected in abundance, which otherwise must be neglected altogether, and a skilful botanist would at all times be able to separate a majority of such species. I could in a brief space of time separate 100 British species, allowing any one previously to use their skill in mixing and confusing them.

SPECIMEN VALLOTAS.

BY WILLIAM KEMP.



ONE of the lions of the International Exhibition of Horticultural Produce recently held at Belfast, was a gigantic specimen of the lovely *Vallota purpurea*, which formed part of a collection of plants from the gardens of T. Sinclair, Esq. This example of our old friend, which is generally known as the Scarborough Lily, was perhaps the finest ever seen; certainly it was one of the largest ever presented at a public exhibition; and the visitors who had been accustomed to the puny little plants so common in gardens, were not slow in expressing their surprise at its wonderful development. It was well furnished with broad foliage of the deepest green, and highly burnished. From out of this mass of handsome leafage arose no less than forty scapes of unusual proportions, and bearing in the aggregate a grand total of over two hundred flowers. The latter were in the freshest condition, and the specimen consequently had a very brilliant appearance, and was certainly not surpassed in attractiveness by any other specimen plant in the exhibition. It afforded, perhaps, one of the best lessons that was derived from the exhibition; for it proved, in the most conclusive manner, that it may be grown to a very large size, and that when so grown, is of the highest possible value for the embellishment of the conservatory, and for forming part of competitive groups during the autumn months, when few really first-class greenhouse plants can be had in bloom. Amateurs who take a pleasure in embellishing their gardens with something of a superior character to greenhouse annuals, should look after this fine old subject, and make up their mind to do it full justice.

Its cultivation is of the easiest, as Mr. Sinclair's gardener would tell us, and doubtless much of his success may be attributed to his leaving the plant alone. It is a very common practice to turn Vallotas out of the pots every year and remove the greater portion of the soil, and as soon as the offsets are large enough, to separate them from the parent. Hence it is we so often meet with examples consisting of one or two bulbs, and producing weakly flower scapes. Now the grand secret in the production of a specimen like the one which gladdened the eyes of the thousands who visited the Belfast exhibition, is to commence with a thrifty plant, and shift it on year by year without disturbing the bulbs or injuring the roots.

Other matters require attention, but they are of less importance than the foregoing, as careful observation extending over a few years will show.

The present moment is most favourable for making a beginning. Good flowering bulbs cost on an average eighteen shillings per dozen; and the foundation of a few fine specimens may be laid for a comparatively trifling sum. If a dozen bulbs are procured, they should be divided into three equal portions, and be put in eight-inch pots. It is to a certain degree preferable to put five or six bulbs in each pot; and where the cost of an additional dozen bulbs is a matter of little consequence, one of these numbers should have the preference. Again a larger number than three specimens may be had if it is so desired; but more than six will not be required in a conservatory of an ordinary size. In potting the bulbs, distribute them somewhat regularly over the surface, to afford space for the proper development of the offsets; and as they will not be placed wider apart at subsequent repottings, the offsets will soon fill up the intervening space. The pots must be well drained, and when more than four bulbs are put in each pot, they must be proportionately larger. The most suitable compost is prepared by well incorporating together four parts of nice turfy loam, and a part each of leaf-mould and well-decayed manure. In this they will grow most vigorously, and in due season reward the cultivator with a splendid display of flowers. The bulbs should be buried up to the neck in the soil.

At all subsequent shifts they should be transferred to pots one or two sizes larger, without being disturbed more than is needful to remove the crocks from the bottom of the ball, and the loose soil round the edge at the top. The best time for shifting is just before they commence to make new growth in the spring.

The *Vallota*, it must be understood, is an evergreen; and, unlike many other bulbous plants, must not be dried off during the winter season. The soil should be kept just moist enough to prevent the roots and foliage shrivelling, and no more. During the growing season, rather liberal supplies of water will be required; and when growing freely, weak liquid manure may be substituted once or twice a-week for the ordinary soft water, with advantage. As the *Vallota* is comparatively hardy, it should have a cool, airy position, safe from frost, when in-doors; and from the end of May until the flower scapes begin to push up, a rather shady position out of doors, will be the most suitable.

A careful perusal of the foregoing remarks will show that none of the details are difficult of comprehension, or otherwise than easy to carry out. The hints here given may be acted upon with the full assurance that amateurs may produce specimens that will form the chief source of attraction in their conservatories during August and September.

FRAME CULTURE OF THE POTATO.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



THE cultivation of potatoes in frames must, to insure a supply of tubers of good quality at the earliest possible moment be commenced in November, and two successive crops be planted afterwards. But when the convenience exists for one crop only, it will be better to defer planting until the beginning of the year, because, although the crop will be later, it will be much heavier and better in quality. Whether planted now, or in January or February, the planting must be performed in precisely the same manner.

A pit or frame is the most suitable structure for potatoes, because the haulm can then be kept near the glass, and be fully exposed to the light, and enjoy a free circulation of air about it. A heated pit is not absolutely required, although in the case of the crop planted in November, the hot-water pipes will be useful in assisting to keep out the frost, but too much artificial heat at any state will be injurious, as it will promote the too rapid production of haulm. Good crops may be obtained from unheated pits, as, with the assistance of mats and dry litter, there will not be much difficulty in keeping out the frost. In any case the best results will be obtained by making up a bed of leaves in the pit or frame, and then covering it with a layer of soil in which to plant the sets. The leaves should be moderately dry, and be trodden firm to prevent them sinking very much after the soil is put on. Where leaves cannot be obtained, stable manure may be employed instead, but it is apt to heat too violently at first, and then become cold. Therefore, every effort should be made to gather a few loads with which to fill the pit devoted to the potatoes, or to make up a bed upon which to place a frame for the same purpose. With leaves there is no danger of overheating, and they may, therefore, be covered with soil immediately after they are made up into a bed. With reference to the preparation of the soil, it may be said that it should be rather light and rather rich. Any good light soil will do very well after it has been incorporated with a liberal proportion of well-decayed manure. A depth of twelve inches will suffice for the soil, and in planting, open out trenches twelve inches apart, and four inches in depth. In these lay the sets from nine to twelve inches apart, and then cover them with the soil drawn from the trenches. The frame may then be shut up until the tops begin to make their appearance above the soil. After this stage a little air must be admitted whenever the weather is favourable to air-giving to insure a stocky growth. The weather alone must regulate the admission of air to the frame. In December and January very little air will suffice, but from the beginning of February onwards, the frames will require ventilating more freely. The earliest crop should have a little soil drawn over the tops of the shoots when they first make their appearance above

the surface, as an additional protection from frost, and in all cases when six or seven inches in height, they will require earthing up in the usual manner.

It only now remains to be said that after the crop is in full growth, rather liberal supplies of water and abundant ventilation will be required. When nearly full-grown, the lights may in mild weather be drawn off altogether during the day, and, as far as practicable, advantage should be taken of these opportunities for watering.

For the earliest crop the *Old Walnut Leaf* is the most suitable, as it turns in quickly, and it is so dwarf in growth, that it takes up very little space. But for the best crop, *Veitch's Royal Ashleaf* will be found preferable, as it is a much heavier cropper than the Walnut Leaf, and is of the most excellent quality.

Sets of moderate size and well-ripened should be selected for planting in frames, and a saving of a fortnight or so may be effected by spreading the sets in a shallow hose, and then placing them in a warm room, or in a forcing-house, to start them into growth. They must be placed in the full light, to encourage the production of hard purple sprouts.

HINTS ON HEATING FRUIT AND PLANT-HOUSES.

BY A KENTISH GARDENER.



IN this communication I shall confine myself to the heating of fruit and plant-houses of a sufficient size to justify the erection of a boiler and service of hot-water pipes, for it has been with this class of structure that I have had the most experience. I would also gladly assist those who have to resort to portable contrivances for keeping the frost out of their miniature structures, but as the manager of a large garden, I have had no occasion to use a heating apparatus of a portable character, and, consequently, do not consider myself properly qualified to speak of any of them. I have had opportunities of seeing some of these contrivances at work in the gardens of amateur friends, and I must confess I am not prepossessed in their favour. Indeed, from what I have seen of them, I consider it more economical to provide for houses exceeding twelve feet square a boiler and service of hot-water pipes. An apparatus of this kind will not be self-acting, as some of those of a portable character are said to be, but it will not require very much attention, excepting in severe weather, and it will be thoroughly reliable. The fact is, it can be managed with considerably less trouble than portable apparatus, and the expense of working will be considerably less. But very small houses will not, of course, afford accommodation for sufficient plants to recoup the expense of a fixed apparatus, and some cheap expedient must, of necessity, be resorted to. In very many instances a brick flue, built along one side and end of the

house will be preferable. It is cheap to construct, not difficult to manage, and economical in working.

In a few weeks from the time of this appearing in print, we may expect rather sharp frosts, and those who have work of this kind on hand, should push it on rapidly, so as to avoid being caught, and losing a portion of their stock, because of the apparatus not being in working order. So far as regards heating horticultural structures with hot water, it appears to me that there is yet much to be learnt. Many persons build houses, and set boilers, and furnish them with just one certain amount of hot-water pipes, without any consideration as to whether a proper amount of heating surface has been given to secure the success of the undertaking. I have seen many useful and handsome buildings erected, and a powerful and expensive boiler attached, and those most interested in it showing the utmost anxiety that these two essentials should be perfect. But when coming to the question of hot-water pipes, it has been dealt with in a niggardly manner. There is a very simple means of ascertaining by calculation the amount of piping required to heat a given space of air, and this is often done to know the required quantity for any one house, and on the strength of such calculations inexperienced people act, and then comfort their minds in thinking that they have done all that means and skill could do—in fact, all that is wanted to be done to make their investments a perfect success. But such calculations are faulty; they cannot be said to be erroneous. They are faulty because they make the basis of their calculations an imaginary condition of the elements, not reckoning for external influences. Therefore it is that they are not applicable to the ordinary structures used as horticultural buildings, unless they make their calculations, which is seldom or ever done, from two extreme points. For instance, if we take a certain house in which the temperature ranges regularly at 40° , we can easily ascertain by calculation how much piping it would require to raise the temperature to 60° , and secure at the same time that there be sufficient surface, that the heat generated from the pipes shall not be of that parching character which results from pipes excessively heated, as they must be where there is insufficient surface. But then such calculations do not go far enough; they only proceed, we may safely say, to one extreme point; for a house that is maintained at 40° without artificial heat, must be favoured by an external atmosphere never lower than 35° . Therefore, when we wish to raise this house, by the application of artificial heat, to 60° , we cannot expect that the same amount of heating surface that serves when the thermometer reads 35° , will serve equally well when it is 20° lower. Nevertheless, many houses are heated in a way which compels us to suppose that the authors of the heating apparatus believed this to be possible, for there is no extra amount of piping sufficient to make up the required degree of heating surface when the external influences should demand it.

Now as a consequence of this deficiency of heating surface, we are obliged to heat to such a pitch the few pipes that we have, that the heat given off from them is so great that it is positively injurious

to vegetable life, and our plants suffer to an extent that will be too plainly shown by future failures.

Then in connection with piping, I would call the reader's attention to the prodigious size of some boilers, as compared to the extent of pipes they have to heat. There is evidently much room for an improvement in this branch of heating, for I have seen some instances where the boiler has been quite large enough to do double the work it had to do, and where such is the case, there is a great waste of fuel. We have of late had several new forms of boilers introduced, but, from what I have seen of them, I consider the old saddle-back form to be the best for all ordinary purposes. In very large gardens a tubular may, perhaps, be the best, but the saddle-back, which is a long way the cheapest, will suffice for the requirements of amateurs.

Closely allied to boilers is the use of dampers, but the question is, are they invariably used so much as they ought to be? I fear not, because it is seldom, if ever, that instructions are given to those who have the working of them as to the object for which they are intended. Dampers are generally placed too far away from the boiler; they should be as near as possible, so that when they are used to confine the heat, they may retain about the boiler the fumes and smoke, to the manifest saving of fuel. But, speaking of chimneys, reminds me of an experiment I tried a few winters back. I reduced a 9-inch chimney (inside measure) to one-half its original size close to the boiler, so that where the heat had previously a superficial square of nine inches to escape up the chimney, it has now only half that space; the consequence is, I confine a greater body of heat round the boiler, thereby saving about 15 per cent. of fuel, and secure at the same time all the draught I require for the fire for a 4-feet saddle boiler.

THE GARDEN GUIDE.

"Next was November; he full grosse and fat
 As fed with lard, and that right well might seeme;
 For he had been a-fatting hogs of late,
 That yet his browes with sweat did reek and steem,
 And yet the season was full sharp and breem;
 In planting eke he took no small delight:
 Whereon he rode, not easie was to deeme;
 For it a dreadfull centaure was in sight,
 The seed of Saturne and fair Nais, Chiron hight."

SPENSER.



HERE are now but few flowers in the open ground excepting the chrysanthemums, and it is only in favourable seasons that they present a very attractive appearance when fully exposed to the weather. Occasionally the hepaticas, violas, double primroses, mule pinks, and the hardy cyclamens and the oxalis will produce a few flowers during the month.

The garden work of November includes amongst other important

operations the planting of deciduous trees and shrubs, root-pruning, and planting of fruit-trees, the turning up of all vacant quarters in the kitchen garden, and the lifting and storing of all root-crops. Indoors the pruning of vines and fruit-trees, and the cleaning of forcing-houses, and otherwise making them ready for starting early in the new year, should be proceeded with when the weather is unsuitable for outdoor work.

FLOWER GARDEN.—Hyacinth and other bulbs should be planted as soon as possible, for, although moderately-good flowers may be had from bulbs planted at Christmas, they will be inferior to those produced by bulbs of a corresponding quality planted two or three months earlier. This is also a good season of the year for taking up, dividing, and replanting lilies of all kinds. They are now beginning to make fresh roots, and will not feel the shift so much as when disturbed in the spring. Push on the planting of deciduous trees and shrubs as fast as possible, so as to have them in their places before the rains cool the earth too much. When the weather renders it necessary to take up the dahlia-tubers, cut the stem down to within six or nine inches of the ground; and, after taking them up carefully, place them in a cool dry place, where they will be secure from frost. Take up and divide herbaceous plants, keep them out of the ground as short a space of time as possible, and take advantage of the opportunity for digging the ground up deeply, and applying a dressing of manure, or fresh soil, or a mixture of both. Frequently sweep and roll the lawns and paths, to give them a fresh and bright appearance; and carefully preserve the fallen leaves for rotting down to leaf-mould.

GREENHOUSE.—The plants available for decorating this structure during the month include *Acacia corymbosa*, *Coronilla glauca*, *Correa pulchella*, *Chrysanthemums*, *Chimonanthus fragrans*, *Cytisus Atleeanus*, *Camellias*, *Erica gracilis autumnalis*, *E. caffra*, *Epacris nivalis compacta*, *Jasminum nudiflorum*. Guard against a damp stagnant atmosphere, and water the plants carefully. When the atmosphere appears damp and stagnant, light a fire in the morning of a fine day, and open the ventilators at the same time, to enable the impure air to escape, and admit a fresh supply to take its place. Remove all decayed leaves, and train into shape *Azaleas* and other plants that need that attention. Keep *Ericas*, *Epacris*, and other plants of a like nature, at the coolest end of the house, and such things as Chinese *Primulas* and *Cyclamens* at the warmest end. Gold and Silver Zonal and Show and Fancy *Pelargoniums* must be kept in a temperature of about 40° or 50° near the glass, and sheltered from cold currents of air.

STOVE.—Reduce the temperature of this structure to an average of 60°, with fire-heat alone, and a rise of five degrees with the aid of sun-heat. Keep the atmosphere much drier than hitherto, and water early in the morning. Orchids with fleshy pseudo-bulbs, like the *Cattleyas*, require just sufficient water to keep them fresh and plump; but the *Vaudas*, and others of like habit, will require rather more. Encourage winter-flowering plants by placing them in the warmest corner of the house.

KITCHEN GARDEN.—Lift full-grown Lettuce and Endive, with a good ball of soil, and place them rather close together in a cold frame or orchard-house, where they will be secure from frost. Dampness is the greatest enemy these subjects have to contend with at this season; and provided they can be kept dry by any means, a few degrees of frost will do them no harm. Look sharp after Cauliflower and Lettuce-plants in frames, and remove every trace of mildew and decay directly it makes its appearance. Give full admission to the air, but keep the foliage dry, and protect from frost. Either ridge up or trench all remaining vacant quarters, as a thorough exposure to the atmosphere is nearly of as much importance to the ground as a dressing of manure.

FRUIT GARDEN.—Fruit-trees growing too luxuriantly must be root-pruned, and this is the best season of the whole year for performing that operation. Trees that have been undisturbed for many years past must be cautiously dealt with, and have only half the roots pruned now, reserving the other for next season. More recently-planted trees may have the whole of the roots cut in at once. Open out a trench at a distance of two or three feet from the stem, according to the age of the tree; and after going deep enough to reach all the horizontal roots, work the spade underneath the ball to sever the tap-roots, which materially assist the production of gross badly-matured wood.

PITS AND FRAMES.—Auriculas must have air night and day in fine mild weather, and only have sufficient water to prevent the foliage from becoming flaccid. The foliage must not be wetted on any consideration. Carnations, Pansies, and Picotees only require protecting from wet and frost, therefore the lights can be drawn off entirely in fine weather, and tilted at the back in mild wet weather. The stock of bedding-plants must be frequently examined, and every attention paid to keep them clean and healthy. Mildew commits terrible havoc among the Verbenas at this season of the year, if not checked; the best remedy is to dust the foliage with sulphur. Bedding Geraniums of all kinds need very little water just now; and if the leaves do flag a little now and then, it is of no consequence. It is far better to let them flag than to keep the soil too moist, or to give water in damp or dull weather.

FORCING.—Prune Vines, Peaches, and Nectarines at once. Winter Cucumbers must have a genial growing temperature, and means should be adopted for covering the lights in very sharp weather to render less fire-heat necessary for maintaining the proper temperature; both as a matter of economy, and for the sake of the health of the plants, maintain a steady temperature of about 60°, and keep the beds in a moderately moist condition.

THE A.B.C. BULB GUIDE, recently published by Mr. T. S. Ware, of the Haletam Nurseries, Tottenham, is so carefully prepared in every respect that we are bound to regard it as a most valuable contribution to trade literature. It contains the names and descriptions of about 600 of the most beautiful hardy bulbous flowers besides lists of plants adapted for embellishing the flower garden in spring. It may we understand, be had free, on application to Mr. Ware.

HORTICULTURAL AFFAIRS.

NEW HARDY CRINUM.—The beautiful *C. Moorei*, which is reported to be hardy, was recently figured in the *Botanical Magazine*, and the plate was accompanied by the following observations from the pen of Dr. Hooker, which, no doubt, will be interesting to those of our readers who are interested in beautiful hardy plants. A hardy crinum is a rarity in English gardens, and except the beautiful *C. capense*, I know no other but this now in open-air cultivation; and beautiful as *C. capense* is, it is by far exceeded in size, foliage, and colour by the subject now under notice. *Crinum Moorei* was introduced into the Glasnevin Gardens in 1863, by Mr. Webb, a friend of Dr. Moore's, who had served on the commissariat staff of our Army in South Africa, and had brought the seeds from the interior—as Dr. Moore thinks, of Natal. During the last five years the specimen from which the drawing in the *Magazine* was made, has been planted in a border fronting the conservatory range at Glasnevin, without getting the slightest protection, flowering sometimes in autumn, and at other times in spring. The leaves are cut up in the winter, but the bulbs are not seriously hurt, and soon recover themselves, when they push out a fresh set of their broad peculiarly-ribbed leaves, 18 to 20 inches long. The bulb is remarkably long, sometimes reaching 18 inches.

CANNING FRUIT AND VEGETABLES.—An immense trade in canning fruit and vegetables is now carried on in America. Strawberries, Peaches, Beans, Peas, Tomatoes and Cranberries are largely gathered and packed in tins and sealed down. This busy season is said to commence about the middle of May, the Strawberry being the first fruit to ripen, after which others follow in rapid succession, until the season closes early in October. It is estimated that in Baltimore, during the season of 1873, about 20,000,000 cans of fruit and vegetables were so preserved, about one third of which were Peaches. This quantity, large as it may appear, seems to be only sufficient to supply the demand, which has increased very rapidly of late. The packing of fruit and vegetables affords employment for a number of women and children. A quick woman, it is said, can earn 1½ dollar per day, and the work is light.

THE BOTANIC GARDENS OF ST. PETERSBURG.—In an account of these gardens by Dr. Regel, in *Gartenflora*, it is stated that in 1823 the number of species cultivated did not exceed 1560, but in 1824 there was a considerable increase, bringing the total up to 5682, which was augmented to 12,000 in 1830. For twenty years the number remained almost stationary, and in 1850 it was only 12,061. But after this there was a rapid accumulation of species. In 1863 they numbered 16,500, and in 1871, 21,320, or probably the largest number in cultivation in any single establishment in the world. These unrivalled collections comprise: 827 species of ferns, 1088 orchids, 214 bromeliads, 350 aroids, 270 palms, 415 conifers, 787 cacti, etc., 1128 hardy shrubs, 2763 hardy herbaceous plants, and 1164 economic and useful plants. The herbarium is enormous, containing 5507 classified bundles, including, according to Dr. Regel's estimate, 165,900 species; a total, however, that we can scarcely accept. The botanical museum contains numbered fruits and seeds up to 25,500; 59,047 specimens of woods; 1906 fossil plants, and 1530 useful products of the vegetable kingdom. A most extensive botanical library enables them to work up these rich collections. It contained, in 1871, 7947 works, in 15,552 volumes.

ESPARTO OR ALFA.—The Franco-Algerian Company obtained from the French Government, in April last, the concession for ninety-nine years of more than 800,000 acres of land, the greater part of which is to be devoted to the production of Alfa. The company calculates on a minimum production of 100,000 tons per annum. A ton of Alfa costs 90 francs at Arzew, and is worth 140 francs at an Algerian seaport. The company believes it will be able to reduce the price of the fibre to 130 francs. In order to enable the company to carry out its important work of supplying material for paper-making, the French Government has authorized it to lay down and to work for ninety-nine years, a railway from Arzew to Saida, with branches, in all about 130 miles in length. The Alfa grounds are those known as the Hauts-Plateaux; the other lands conceded to the company lie about fifty miles to the east of Oran, on the line of the Alger and Oran Railway.

TO CORRESPONDENTS.

RHUBARB AT CHRISTMAS. — *Amateur.* — Begin at once. Select a few good roots according to the supply you wish, dig them up, let them lie on the surface of the ground, exposed to all weathers, for a fortnight, then put them in pots or boxes, as most convenient, and place them in a warm cellar, or any other warm place, and you will have a supply at once. Take up and treat a few plants every three weeks in the same way until Christmas, and you will have a supply until that growing in the open ground comes in. A simpler plan would be to obtain a few barrowfuls of tan, and lay it upon the floor of a warm cellar or brick pit, or, in fact, any spare sheltered place, and plant your roots in it; the warmth of the tan will induce immediate growth. In this way is obtained the rhubarb supplied to the London markets throughout the winter.

TRITOMAS. — *B. S.* — *Tritoma nvaria* and its varieties require the simplest culture; they like a deep rich soil, are perfectly hardy, and are propagated both by seeds and division of the plant, which generally produces abundance of offsets. These offsets, taken off after the plant has done blooming, potting them in well-enriched loam, and placing them in a cold pit, or cool greenhouse, and shifting on as they require till the end of April, will make fine blooming plants next year. The bed must be prepared by throwing out the soil to the depth of two feet, then six inches of very rotten manure thrown in, then a layer of mould of the same thickness, and the mould and dung mixed, and well incorporated with a fork, then more dung and more mould, till the bed is filled up to six inches above the level, to allow of its settling down to its proper level. Here the plants will grow amazingly, and send up magnificent spikes of bloom. The somewhat untidy habit of the plant must be borne with, for the sake of the beauty of its flowers.

VINES. — *M. R.* — If the vines have borne well under the old treatment, it would be foolishness to cut them away. If they have borne indifferently, and you propose to replace them with young shoots, it will be best to cut the old wood clean out, and thus throw all the vigour of the plant into the young wood; and if the young canes are already half way up the house, you would on this plan secure a good crop next summer, and good strong wood for spurring in at the winter pruning. Let us repeat, if the vines have borne well, don't cut them down: you can still make something of the young shoots by denuding them of all their buds but the two or three top ones when the leaves have dropped, and laying them into large pots filled with rich soil, into which they will root and form fine plants next summer, with two or three fine bunches on each.

BULBS FOR WINDOWS. — *A New Subscriber.* — You cannot do better than obtain a supply of hyacinths, crocuses, snowdrops, jonquils, and early tulips for your window. The only greenhouse bulbs we should recommend to you are *Lachenalia pendula* and *L. tricolor*, to be potted in fresh sandy peat, about a dozen bulbs in a five-inch pot.

MANDARIN ORANGE. — *S. S., Warwickshire.* — The Otaheite is simply a variety of the Mandarin. The Mandarin is *Citrus nobilis*, the Otaheite is *C. nobilis minor*. But the variation is so trifling that a well-cultivated tree of the latter could scarcely be distinguished from a tree of the normal type. The flowers of this species, and the variety, may always be known by their purple colour in the bud state. This and the myrtle-leaved orange (*C. vulgaris*) are the most useful for small conservatories, as they produce a large quantity of blossom and fruit in a very small state. Three dozen fruit have been counted on a tree only a foot high, and which, after being allowed to bear so many, would probably never grow any higher. Indeed, we may venture to say, that of all greenhouse shrubs, the Mandarin and Otaheite oranges are as certain to repay good cultivation as any plants in cultivation.

MANURE FOR ROSES. — *Inquirer.* — One of the best manures for roses is a mixture of guano and wood-ashes spread on the surface of the soil in April, at the rate of about a quart for every tree. Bone-dust and guano are both good to dig in and mix with the soil at the time of planting, but we should prefer half-inch bones to bone-dust, and, if dug in and thoroughly mixed with the soil, would be lasting in their effects. But there is nothing to equal stable-manure for roses. Your long

bed should be five feet wide, the half standards to occupy the centre, and the dwarfs to be eighteen inches from them, which will place the dwarfs one foot from the outside, which is enough, if they are kept closely pruned. Put the standards two feet apart, and the dwarfs eighteen inches. If they want more room in a year or two, replant them; this will be better than planting very far apart at first.

WINTERING GERANIUMS IN OUTHOUSES.—*Amateur Subscriber.*—Many an amateur has no better place than a shed with top-light in which to winter such things as geraniums, fuchsias, etc., and, somehow, they get through the difficulty. Severe frosts will kill such things; but while frosts last the plants may be buried in darkness for a fortnight at a time, by means of mats, or even a temporary thatch of straw, or turf, to be removed at the first break of the weather. The drenching rains of October and November ruin tender plants more than a slight frost, and, indeed, render them unable to bear a little freezing. If got under cover before the heavy rains set in, protection from *severe* and long-continued frosts is all that is necessary. Try one of the small charcoal stoves, and burn in it charcoal-dust, with the finest of the powder sifted out. It may be suspended in the centre of the shed, and is a very safe means of keeping frost out. But beware of making a dust among the plants.

PLANTS FOR ENTRANCE HALL.—*Miss F., Berkshire.*—You have not light enough to make the lobby a permanent home for plants; and, to keep it gay, it would be better to introduce plants in flower from time to time, removing and replacing with others as soon as their bloom declined. From the present time to Christmas pomponé chrysanthemums, scarlet salvias, ericas, and tree carnations, would be best; then, on the turn of the year, camellias, cytisus, primulas, and other spring flowers; and for the summer whatever pleases your eye most. Have a few potted evergreens, such as *Buxus balearica*, golden *Euonymus*, *Azalea amœna*, and well-furnished camellias, to fill up at any time when flowers are scarce. Pot off a few hyacinths and crocuses at once, and also place a few hyacinths in water. Such places as halls and vestibules should be kept gay by succession; first because sameness would weary the eye; and secondly, because few plants can be properly grown in such places, though it does them no harm to abide there while in flower. Some of the hardiest palms will be found very useful.

ENRICHING FLOWER BEDS.—*Kentish Subscriber.*—If the exhausted beds have a good bottom, we advise removing the top spit, and replacing it with a mixture of virgin earth from an upland pasture, well chopped up with old chippy cowdung, and a good proportion of leaf-mould, say, if you can obtain the quantities, equal parts of each of the three ingredients. But, as we know nothing of what the beds now contain, we can hardly advise with safety. If you can get the beds empty this winter, the best way will be to take off the top spit, and fork over the subsoil, so as to let the frost and snow penetrate it, then get a good supply of burnt clay, and hotbed dung, and chop them down together in a ridge, and let them be well frozen, and fill up the beds with the mixture early in March, and they will be in admirable condition for planting as soon as they have settled. Clippings of hedges refuse wood, straw, etc., built up over a hole, and packed round with cakes of old turf, and then burnt, make a capital dressing to dig into the old soil if you cannot well get new material to replace the worn-out stuff. If used chiefly for bedding plants, make a compost of leaf-mould, and sandy soil from a common, equal parts, and one-fifth of the whole very old dung, would prove a good mixture. Bedding plants do not require a rich soil so much as a *new* soil.

MANDEVILLEAS AND PASSIFLORAS.—*S. F. P.*—If you have a conservatory with a border, plant out the Mandevilla at once without breaking the ball. It never does well as a pot plant, but is a fine conservatory or greenhouse climber, where it can have head and root room, and a temperature of 45° to 50° all winter. *Passiflora cœrulea* you may shift into a next-sized pot, and keep in a frame or greenhouse all winter, and next May to be turned out under a south wall, there to remain as a hardy climber—that is to say, if you live anywhere within hearing of the nightingale. If your house is in a bleak position, use it as a greenhouse climber, in the same way as we advise for the *Mandevilla suaveolens*. *Passiflora racemosa* must have stove or warm greenhouse treatment, and will do as a pot plant if you shift, as it requires more room; but it is better planted out, with a good space, to run along a rafter.

CULTIVATION OF AGAVES.—*G. S. Wakefield.*—All the aloes require a compost November.

consisting of rich loam, a little old, dry, chippy dung, leaf-mould, and a good admixture of broken crocks, lumpy charcoal, and brick rubbish. The pots should be well drained with large crocks at the bottom, then a layer of smaller ones, and then some of the roughest of the soil. They are propagated by suckers, which may be taken off now if of moderate size, and struck in sandy peat and loam. They like sun, and during the summer plenty of water; in winter, very little, or none at all. Broken leaves may be cut off close with a sharp knife, but the less the plants are cut or injured the better. Do not shift to larger pots unless the pots are already full of roots, but, if they really require more room, shift at once without breaking the ball, and give plenty of water and shade for a week. When growing, an occasional sponging of the leaves with soft tepid water will do them good, but they must not be exposed to the sun while the foliage is wet.

THRIP-INFESTED FERNS.—*A Lover of Ferns.*—You have not shown the affection your signature would lead us to suppose you had for these beautiful plants by letting them get infested with thrip in the way you describe. Your best plan will be to remove and burn the fronds that are much disfigured, and then give the house in which they are a thorough smoking with tobacco, or tobacco paper. Be careful not to overdo it, and repeat the dose three successive nights; and after a week's interval give the house another smoking, to destroy the young ones which make their appearance. We expect you have kept the house too dry, which is a prolific source of thrip.

FRUITS FOR NORTH-EAST WALL.—*S. A.*—To answer your query satisfactorily, we must first of all know in what part of the United Kingdom you live. It may be your residence is in Sutherlandshire, and the cultivation of fruit otherwise than against a choice south wall impracticable, or on the other hand you may live in Cornwall, where a very large number of fruits may be grown against a north-east aspect. As you have not considered it desirable to inform us of your whereabouts, we can only answer you in a general way, and say that you may plant with confidence *Morello Cherry*, *Orleans*, *Jefferson*, *Magnum Bonum*, and *Victoria Plums*. You could also plant *currants* for late use, as they would ripen late, and the birds could be kept from them.

PLANTING PEACH AND NECTARINE TREES.—*W. B.*—We should advise you to make your selection at once, and have the planting finished by the end of October. The trees will then become nicely rooted at once, and start freely away in the spring. Spring-planted trees lose the best part of the season in making roots. If the soil is naturally good, you need do nothing to the border beyond trenching in a moderate dressing of thoroughly-decayed manure. Mix the manure well with the soil, and trench as deep as the nature of the subsoil will admit. To insure the highest degree of success, you had better take out about a couple of barrowfuls of the old soil where the trees are to be planted, and fill in with good turfy loam chopped up roughly. Spread the roots out carefully, and keep them near the surface. With uncongenial soil the best plan will be to take it entirely away to a depth of three feet, and fill the space with good turfy loam. This would be an expensive affair, but you would be more than repaid in the superior quality and quantity of the fruit. We should not advise you to mix any manure with the soil in the first instance; it would promote too great a luxuriance in the growth. What you want is a medium-sized, stubby, and well-ripened wood.

CELERY FLY.—*Inquirer.*—We know of no preventives more effectual than fresh lime or soot, sprinkled occasionally over the young plants, which renders them distasteful to the fly. But when the maggot has got a lodgment, much may be done by crushing it in the leaf, and removing and burning the leaves that are most injured. Wherever this fly has obtained a lodgment, *cultivation* alone will eradicate it. The pupæ, or chrysalids, are now in the earth. Twice digging in winter, and once in spring, of the plot intended for celery next year, and also of the plot on which celery stands now, would pretty well extirpate it, by exposing the defenceless creatures to the weather and the birds.

SUCCULENTS.—*Mrs. H.*—There can be no doubt at all in the matter. The succulents offer far more variety and interest to the cultivator than amateurs are aware of; but one might as well hope for the instantaneous prevalence of universal prosperity and virtue as for the general appreciation of true excellence in the characters of plants. *Pachyphytum bracteatum* and *Roehea falcata* are true Crassulaceous plants. The last-named is one of the finest subjects ever housed in an amateur's greenhouse.



CATTLEYA MARGINATA.

CATTLEYA MARGINATA.

(With Coloured Illustration.)



THIS fine plant is a good representative of a very important section of orchids, that are adapted, in an especial manner, to the circumstances of a number of amateurs. These are the class known as "cool orchids," which require less heat than those that belong to the Indian house, and are, in other respects, less difficult to manage. A collection of cool orchids may now be obtained for a comparatively trifling outlay, provided well-known useful kinds are selected, and mere rarities and costly curiosities are avoided. We have, in past issues of the FLORAL WORLD, treated at some length on the practical part of the subject of cool orchid culture, and we refer to it now because the beautiful plant here figured may be regarded as a fair type of the quality of the orchids that the cool system commands.

Cattleya marginata is a native of Brazil. It is a dwarf plant, rarely exceeding a height of six inches. It produces its flowers in September and October, a season when few orchids are in flower. The plant requires but little room, and is best grown on a block, with a little sphagnum moss, suspended from the roof of the house. It should have frequent supplies of water in the growing season, and when at rest should never be allowed to become quite dry.

The following are the names of fifty orchids suitable for a cool house, and producing a beautiful collection. The list comprises varieties that are in every case cheap and good, and where as many as fifty are required, not one of these can be dispensed with:—

Anguloa Clowesi, A. Ruckeri, Arpophyllum giganteum, Barkeria Lindleyana, B. Skinneri, Brassia verrucosa, Cattleya citrina, Cattleya marginata, Cymbidium eburneum, Cypripedium insigne, Dendrobium chrysanthemum, D. speciosum, D. transparens, Disa grandiflora, Epidendrum aromaticum, E. atropurpureum roseum, E. macrochilum, E. vitellinum, Lælia acuminata, L. albida, L. majalis, Lycaste aromatica, L. Skinneri, Masdevallia coccinea, Maxillaria tenuifolia, Odontoglossum bicktonense, O. Bluntii, O. citrosimum, O. cristatum, O. gloriosum, O. grande, O. hystrix, O. nebulosum, O. Pescatorei, O. pulchellum, O. Uroskinneri, Oncidium bifolium, O. crispum, O. leucochilum, O. phymatochilum, O. pulvinatum, Pleione lagenaria, P. humile, Sophronites grandiflora, Stanhopea Devoniana, S. grandiflora, S. oculata, S. tigrina, Zygopetalum Mackayi, Z. maxillare. The principal part of the above will grow best in pots and baskets, but a few will require to be fastened to blocks. G. G.

THE NIGHT TEMPERATURE OF PLANT-HOUSES.



REENHOUSE plants so frequently suffer during the winter months from a night temperature in excess of their requirements, that a few practical observations bearing on the night temperature of plant-houses will perhaps be useful at this moment.

First of all, it is needful to understand that the temperature of plants during the night is always lower than during the day where nature is undisturbed, but in plant-houses of all kinds it is occasionally otherwise, especially at this time of year. It is quite certain that an excess of heat during the hours of darkness is directly injurious to plants, and the cause of many of those morbid affections about the symptoms of which we hear much, and the causes of which we hear little. The forcing of seakale is a good illustration of the evils of undue night temperatures. In this instance we want an unhealthy or unnatural production, and we obtain it easily by means of *heat combined with darkness*. But there is no substance, little nourishment, and no constitutional vigour in the blanched shoots of seakale. If those same shoots had to make plants, they would be the most miserable plants ever seen, that is to say, if they ever became plants at all, and it is a question if that would be possible. Now it is a strange thing that thousands of cultivators, who are well advertised by the artificial character of seakale, nevertheless, load on the fuel towards nightfall, and compel their plants to make long, weak, half-blanched shoots, when, as they know, a short growth, or no growth at all, would be preferable.

It is a fact of the utmost importance that plants of *all kinds* will bear with impunity a lower night temperature than is customarily recognized in the management of plant-houses. In the most torrid regions of the globe, the temperature at night is frequently very low. Readers of the Rev. J. D. Hooker's "Himalayan Journal" will remember the records of orchids and hoar-frosts. Everybody, that is to say, everybody who reads, is familiar with the fact that in the hottest parts of Hindostan, and in the hottest seasons, the temperature of the air at night is commonly twenty, thirty, and even forty degrees below the temperature at midday, and that ice is manufactured by simply pouring water at nightfall into the saucer-shaped hollows scooped in the earth, the rapid evaporation from which, combined with active radiation, produces so low a temperature that ice is quickly formed, and is gathered up for the next day's comfort of the "sahib." High night temperatures are most injurious to plants, no matter from what part of the globe they come. A general rule can be given in respect of the temperature to be kept at night, and it is simply this, that it should be *always lower than during the day*. In many gardens the fires are lighted about 4 p.m.; by 6 p.m. there is a kindly heat diffused, or it may even happen at 4.25, for some of the tubular boilers demand only fifteen to twenty

minutes to send thermal telegrams all over the place, and forthwith the temperature of every house so fed rises, and the *heat increases as the darkness increases*, and that is PLANT MURDER. Do not suppose, good reader, that it is only in remote and very darkened districts this takes place. Nothing of the sort. The mischievous system is in action in some good gardens; the fires are lighted late in the afternoon, and the houses are comfortably warm after dark, and the plants are already becoming long-jointed, pale, and attenuated; the Dæmon of *fire-heat without light* has got possession, and will for a time have his way. But that need not prevent us raising the warning voice. Keep down the night temperature, and if you want growth let the glass rise by daylight, and whatever growth is then made will be green and worth having.

POT PLANTS FOR DECORATIVE PURPOSES.

BY MISS A. HASSARD.



It is quite unnecessary for me to demonstrate the value of pot plants for decorative purposes, particularly at this season, when cut flowers are scarce. A few plants placed on the buffet and dinner table take their place effectively as a substitute, and have the advantage of lasting longer; that is, if the plants have been properly cooled down preparatory. So much depends on this, that when failure happens, the atmosphere of the room is usually blamed as the cause. When ferns, and such like plants, shrivel up their delicate fronds a few hours after they have been introduced from the greenhouse, the blame is cast upon the fire and the gas, whereas, the real cause is, they had not been properly cooled off first; and if this had been attended to, they would have remained fresh for weeks, whereas, being unprepared, a few hours was sufficient to spoil their appearance.

In the way of foliage plants for room decoration, palms and ferns come first, for, although there are many foliage plants more attractive in colour, there are none so graceful and elegant, or more useful for table decoration. Amongst ferns adapted for placing on the dinner table, there is none more elegant or lighter looking, than a well-shaped plant of *Adiantum cuneatum*. There have been many new varieties introduced since this plant was first used for this purpose; but none have been able to supersede it, with its dark green fronds spreading round the base of the pot, and shaded up until it is finished off with three or four pale tinted ones at the top. For a small-sized plant it has no equal. There are many other varieties of ferns also well suited for table decoration, such as *Adiantum capillus veneris*, *A. pedatum*, *A. formosum*, *A. tinctum*, *Lomaria gibba*, *Gymnogramma calomelanos*, *Cheilanthes elegans*, *Davallia elegans*, *Pteris serrulata*, *P. serrulata cristata*, *P. tricolor*, and many others too numerous to mention.

Palms are another class of plants well adapted for the decoration of sitting-rooms. On the dinner-table a handsome palm may be employed, either as a centre-piece, or a pair at the top and bottom. For a centre, nothing is more effective than a plant of *Chamædorea elegans*, and for small plants, *Cocos Weddelliana*. I need hardly remark the latter plant is quite as well suited for a centre as the *Chamædorea*, but in small places it is not often to be met with of a size sufficient for this purpose. There are many others I could enumerate, but space will not allow me.

Next under our notice come brilliant-coloured foliage plants, such as *Alocasias*, *Begonias*, *Caladiums*, *Coleus*, *Crotons*, *Cyprus*, *Dracænas*, *Iresine*, *Maranta*, etc. There is a difference of opinion as to using highly-coloured foliage plants, in conjunction with other floral decorations, where the latter are employed on the table. I must say, for my own part, I prefer to see plants used with green leaves or fronds only; but where cut flowers are not employed in the decoration to any very great extent, I think nothing looks better than well-coloured plants of crotons, caladiums, or such like. Flowering plants are also very effective for room or table decoration, but to give a list of these would occupy far too much space, so let it suffice to say small and compact grown specimens of whatever are in season are best. At the present time, *Epiphyllum truncatum* is in brilliant condition.

As the common pots in which plants are grown are anything but ornamental, these must be concealed as far as possible. There are many ways of doing this; some drop them into China pots, others into cases made of paper, porcelain, wood, or rustic terra cotta, and some cover them simply with fronds of the common brake fern (*Pteris aquilina*), by inserting the ends of the fronds in the damp soil of the pot, and then giving them a crack so as to make them droop round, and hide the earthen pot underneath. The latter is the most inexpensive way, as the braken fern is found in almost every hedgerow; but it is at the same time the most troublesome, as the fronds so placed last but a comparatively short time, and it is only in summer we can find them. Every decorator, as a rule, has his or her own opinion as to what is the best form of outer case, and mine is a handsome china pot, for, though this is the most expensive, it is the cheapest in the end, as paper cases, and such like, become shabby in a short time, but the china pot, if carefully handled, will last for years. After the pots in which the plants are growing have been dropped into the outer cases, the surface of the soil should be concealed with silver-sand, or fresh green moss from the woods.

All plants in rooms should be well watered, and never once allowed to become dry. If this is the case with ferns, and the fronds once become shrivelled, no amount of water will ever bring them round again. The best way is to feel the soil every morning, and if it is dry, the plants should be lifted out of their outer cases, be well watered, and let drain before they are lifted back again, and all such plants as palms, india-rubbers, etc., should have their leaves sponged over once or twice a week at the least. By a little

such attention, well-grown handsome plants can be made to last a wonderfully long time in heated atmospheres, where they would be supposed to fade as soon as introduced from the stove or greenhouse. The common hardy British ferns, if grown in pots singly, or in groups in pans, form pretty ornaments, and stand the cold air of halls, etc., where other plants would not live. They are well worth a trial for this purpose; some of the small-growing varieties, such as *Asplenium adiantum-nigrum*, *A. marinum*, *A. trichomanes*, *Polypodium vulgare*, etc., being very neat and pretty. These small or dwarf growing kinds are best adapted for pans, but *Scolopendrium vulgare*, *Lastrea filix-mas*, and such like, show to best advantage when planted singly in pots. Before closing this paper, I cannot refrain from making a few remarks on the usefulness of *Acacia lophantha* as a table-plant; it will stand a room heated up to almost any degree, and looks as light as any fern.

MARECHAL NIEL ROSE ON A NEW STOCK.

BY HENRY TAYLOR, ESQ., FENCOTE.



MR. JOHN HARRISON, of the North of England Rose Nurseries, Darlington, has raised a stock for budding and grafting dwarf or bush roses upon, which has turned out so good, that it is in a fair way of superseding the manetti, or any other stock at present known. He calls it the *Napoleon Stock*. It was raised some years ago, and was picked out from amongst a bed of seedling roses, on account of its robust and remarkably vigorous habit. It strikes from cuttings as freely as the manetti, and all the different varieties of roses, including tea-scented and noisettes, unite and take to it freely when budded or grafted thereon. It is said to be the best stock in the world for tea-scented roses, imparting a vigour which is remarkable when compared with those worked upon the manetti.

In the *Gardeners' Magazine* of last year I mentioned a Marechal Niel rose, which had been budded on the Napoleon Stock, and planted in a span-roofed glass-house, and that in four years it completely covered sixteen four-feet lights, eight on either side, and that from three to four thousand blooms had been cut from it in the preceding spring, and sold at sixpence each to the dealers at Newcastle. The first batch of blooms was sent off in February.

In June last, Mr. Harrison planted another Marechal Niel rose, budded on the same stock, in a large glass-house, intended specially for growing specimen rose-trees in pots. By the end of October, a period of only five months, it had shot out eight branches, varying in length from fifteen to seventeen feet, or about 130 feet of wood,

and it is still growing. What length these shoots will attain before the tree goes to rest, remains to be seen.

I understand Mr. Harrison intends sending out his Napoleon Stock to the trade next year, and, therefore, in due time, roses can be obtained at other nurseries budded upon it.

SQUAT CHRYSANTHEMUMS.



THE late John Salter, of Hammersmith, invented a mode of training the chrysanthemum, which he desired the writer of this note to find a name for, and it was accordingly designated the "squat" system. The object of this training is to dwarf the tall-growing sorts so as to form round heads dense with leaves and flowers, not only covering the top of the pot, but the sides also, so that when the plant is in flower, the pot is literally buried in the beautiful growth it has produced.

To train in this way is a very easy matter, but a thoroughly vigorous growth must be promoted by the liberal use of manure-water. The plant being in the blooming pot (8, 10, or 11 inch), is



SPECIMEN SQUAT CHRYSANTHEMUM.

plunged in the open ground in the full sun, and liberally fed. As soon as the shoots are long enough, they are brought over the edge of the pot, and pegged down quite close to it all round. They soon

grow beyond the pegs, and turn up, every main rod then having the form of the letter U. When the flower-buds are beginning to swell, a plentiful support is afforded by neat stakes driven into the pot (as shown in the skeleton figure), and the pegs are withdrawn, and



SKELETON SQUAT CHRYSANTHEMUM.

the plant is ready for the greenhouse stage, or any other place in which it is to be flowered. The result is a grand globular mass of the most beautiful vegetation, which entirely or nearly conceals the pot from view. S. H.

WINTER FLOWERS IN ABUNDANCE.

BY W. BRADBURY.



It is so difficult to maintain a good display of flowers during the winter season without the assistance of a warmer temperature than that of an ordinary greenhouse, that I would strongly advise amateurs who like to have an abundance of flowers at all seasons of the year, and who do not mind the expense, to have a plant stove. It need not be a very large or a very expensive structure, as it can be built plain and in precisely the same manner as an ordinary greenhouse, excepting that a greater heating surface must be provided. A span-roof house, ranging from ten to twelve feet in width and from twenty to thirty feet in length, would afford ample accommo-

dation for a nice stock of plants, and, with an ordinary amount of trouble, a capital display of flowers may be had throughout the winter. In a house of the dimensions given it will, when an abundance of winter flowers are required, be needful to economize the space as much as possible. It will not do to crowd the house with so-called ornamental-leaved plants of a weedy character, or with summer flowering plants. It is true some of the very finest stove plants bloom during the summer season, but as there is then an abundance of flowers out-of-doors and in the greenhouse and conservatory, it would not be prudent to occupy the stove with summer flowering plants, to the exclusion of those required for winter flowering. The stove will also be found of extreme value for pushing on hyacinths, astilbes, lilacs, and other hardy subjects required for early flowering; for the growth of the most beautiful of the fine foliage plants adapted for the decoration of the dinner-table; and ferns and palms. It will also be useful in other ways, such, for example, as raising cucumber plants for early planting, pushing into growth bedding plants, from which a supply of cuttings is required for early propagation, and with the aid of a hand-glass or close frame a large number of cuttings of bedders may be struck without interfering materially with the general stock. The house must be heated with a boiler and a service of hot-water pipes, as any attempt to maintain the proper temperature with portable contrivances will only end in vexation, and gas will be too expensive for burning regularly. Ventilators at the apex, with a few openings at the sides near the pipes, for the air to pass over them and become warmed before it reaches the plants, will suffice for the admission of air. The interior can be fitted up according to taste, but for houses not exceeding ten feet in width it will be found most convenient to have a pathway down the middle, and a flat stage on each side.

In a house of this description a very large number of plants may be [had in bloom during the winter season, and of those especially adapted to the requirements of amateurs, the following are deserving of especial notice:—*Echmea fulgens*, a beautiful plant, with bright crimson flowers; *Anthurium Scherzerianum*, a most attractive and free growing plant, which blooms freely during the winter, and its bright vermilion banner-like spathes remain in perfection for about two months. *Aphelandra aurantiaca* *Roezli*, *A. nitens*, and the splendid *A. fascinator*, a coloured illustration of which recently appeared in the FLORAL WORLD, are simply magnificent for winter flowering, producing, as they do, fine spikes of orange scarlet flowers. *Ardisia crenulata* is exceedingly ornamental when loaded with its large crimson berries, but it is frequently met with in an unhealthy state, through proper means not being taken to keep the foliage free from red spider. The yellow berried form found in catalogues under the name of *A. fructo luteo*, is a miserable thing, and certainly not worth growing, although there appears to be a sufficient demand to induce the nurserymen to retain it in their catalogues. The winter-flowering *Begonias* are most valuable, as they are of free growth, and nice little bushes can be produced in the course of the season by striking the cuttings early in March, in

batches of four or five together, and then shifting them on without separating them. It is a most excellent plan to put five cuttings round the side of three-inch pots, and when they are struck and have filled the pots with roots, to shift them into six-inch pots. The most useful are undoubtedly *B. Digswelliana*, *B. fuchsioides*, *B. nitida*, and *B. Saundersiana*. *Billbergia morelliana* and *B. thyrsoides* are two pretty bromeliads, well worth attention. *Centradenia grandiflora* is a neat growing plant, of an attractive character, as also is *Centropogon Lucyanus*, which, by the way, may be grown most successfully with but little trouble. *Dalechampia Roezliana rosea* is by no means so attractive as many other subjects, yet it is well worth growing, for the pink bracts are very pretty and distinct. *Eranthemum pulchellum* is most attractive and easily grown; the flowers are of the most intense blue, and, propagated and managed as advised for the begonias, good specimens may be had for winter flowering. In the varieties of *Epiphyllum truncatum* we have a class of the most valuable winter flowering plants. They require very little care, and when in bloom have a very brilliant appearance. There are seven or eight distinct varieties, and all are more or less good. Standards on fifteen inch stems produce the best effect. They simply require a shift once a year, and to be encouraged to make a vigorous growth by being placed in the warmest corner of the stove, and supplied rather liberally with water, both at the roots and overhead. When the growth is completed, gradually harden them by lessening the supply of water and placing them in an airy part of the stove, where they will be exposed to the sun. As soon as the growth has become firm, remove them to a sunny position in the greenhouse, and give very little water. In October return them to the stove, commence to water more liberally, and they will bloom superbly during December and January. The grand points in their culture are to encourage them to make a good growth in the early part of the season and then thoroughly ripen it by exposing them as already advised. *Euphorbia jacquiniæflora* is most useful to cut from for head dresses and for table decorations, and not less than half-a-dozen or so of specimens should be included. Then we have the *Gesneras*, and of these *G. cinnabarina superba*, *G. exoniensis*, *G. refulgens*, and *G. zebrina splendens*, are the most distinct and beautiful. *Nidularium Innocenti*, *Vriesia brachystachys*, and *V. splendens*, are three bromeliads which flower during the winter, and are then very cheerful and pretty. *Poinsettia pulcherrima* has such a brilliant appearance, when well grown, that it must of necessity enter largely into every collection of winter flowering plants. The variety known as *P. pulcherrima major* is a decided improvement on the specific form, and, as it can now be obtained at nearly the same rate, it should be purchased in preference to it. *Rivina humilis* is a pretty berry-bearing plant which has a most pleasing appearance throughout the winter, and *Thysacanthus rutilans* is one of the most elegant plants in existence when properly grown, and its true character developed.

The variegated plants most useful for winter decorations are *Ananassa sativus variegatus*, *Aralia leptophylla*, *Croton angust-*

folium, *C. interruptum*, *C. undulatum*, *C. variegatum*, *Dracæna Cooperi*, *D. stricta*, *D. terminalis*, *Hibiscus Cooperi*, and *Pandanus javanicus variegatus*.

Very little has been said about the cultivation of the various subjects mentioned, because full directions have been given for their successful management in recent issues of the FLORAL WORLD, by growers who are adepts in their culture. A reference must, therefore, be made to the indices of the back volumes, for information under this head.

CHRISTMAS APPLES AND PEARS.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex, W.



THE fruit stores will soon be overhauled, for the purpose of ascertaining how far the supply is likely to meet the demand during the Christmas and New Year's festivities, it will perhaps be both useful and interesting if attention is directed to the finest apples and pears in season during the period over which the above-mentioned festivities extend. Apples and pears are the only hardy fruits of importance during the next two months, and, as they add much to the attractive appearance of the dessert, and are generally rather highly appreciated by the guests, they are usually in great demand, as a reference to the market reports will show. Notwithstanding this important fact, sufficient importance is not, as a rule, paid to the selection of varieties in season at mid-winter, and too many trees are planted of those which ripen during September and October, when plums, peaches, and other soft fruits are abundant, and dinner parties less frequent. Especially is this the case in gardens of a small size, in which it is of the utmost importance to select the varieties of the various fruits in a manner that will secure a good supply at mid-winter as well as at midsummer and the three following months. Of course grapes should form a part of the dessert during the forthcoming season, but of these, and other fruits grown under glass, it is not my intention to speak at the present moment. Apples are of immense value, for the richly coloured sorts, such as the Blenheim Orange, will supply all that is wanted in the way of colour on the dinner table, and contrast admirably with the brown and yellow pears and black and white grapes, and other things of which the dessert consists. Even some of the high-coloured kitchen apples may be brought into requisition, for they are exceedingly useful for trophy groups, and may be so arranged that no guest would, for a moment, think of taking one; and when done with they can go to the kitchen for tarts, sauce, and other uses to which they may be put. Some of the large kitchen pears may also be turned to account in the same manner; and it is notorious that immense examples of *Uvedale's St. Germain's* are imported from Jersey by the fruiterers in the centre row of Covent Garden, and let

out by them at a rather high figure, for the formation of trophy groups. There are no very great objections to their use, and, in my opinion, it is perfectly legitimate to put any fruit upon the table that will please the eye, provided there is a sufficiency of first-class quality to eat.

To make up a selection of first-class APPLES in perfection at Christmas requires considerable practical knowledge, because some of the most handsome and best flavoured are not suitable for general culture, and for planting in gardens of too small a size to afford accommodation for any but productive trees. One of the best of the whole series is *Adams's Pearmain*, an excellent fruit, as remarkable for its handsome appearance as it is for its high quality. The skin is beautifully striped with red on a yellow ground, and the flesh is pleasantly perfumed, crisp, and full of saccharine juice. *Api*, or *Lady Apple*, is a pretty little fruit commonly met with in fruiterers' windows in the winter. It is not so highly flavoured as many others, but it has such a brilliant appearance as to be worth growing expressly for ornamental purposes. The *Fairy Apple* is also a small very highly coloured fruit, worth growing for the same purpose as the preceding. *Bess Pool* is very useful and handsome, as also is *Braddick's Nonpareil*. *Blenheim Orange* is one of the most desirable, as the fruit is usually large in size, richly coloured, and of excellent flavour; it is, in fact, one of the most useful apples grown. *Court of Wick* is a pretty medium-sized fruit, rich in flavour, and well coloured. *Cox's Orange Pippin* is one of the most useful of its class, as it is in use from the end of October to the middle of February, of good quality and appearance, and the tree an abundant bearer. *Fearn's Pippin* is second to none in appearance, for it is handsome in shape and rich in colour and flavour; like the preceding, it is a capital bearer, and can be highly recommended. The *Golden Pippin* is quite distinct in colour from the preceding, as the skin is of an uniform lemon yellow, and rather showy on the table when nicely arranged. *King of the Pippins* is a handsome and useful apple, but it is rather too early for our present purpose, as its season is from October to January, and it may be considered at its best during November and December. *Hubbard's Pearmain* has little to recommend it besides its high quality and productiveness, for it is dull in colour. *Lord Burghley* is very beautifully coloured, and is in perfection throughout January and two following months. The *Margil* is a useful mid-winter apple, for it is exceedingly rich, and the tree is a good bearer, and hardy. *Northern Spy* is one of the best of the high-coloured American apples in cultivation in this country, and although less valuable as regards its productiveness and quality than some of the finest English varieties, it is well worth growing. *Pitmaston Nonpareil*, although dull in appearance, can be highly recommended for its high quality. Our old friend the *Ribston Pippin*, although, like the last, comparatively unattractive, is so thoroughly good and generally appreciated, that it must have a place in a select collection. Another dull-coloured apple of good quality is *Skyehouse Russet*, which may be considered one of the best of the russet class. There are others that could be mentioned as being of good quality and in

season at Christmas, but with the foregoing there will be sufficient to maintain an abundant supply. A few of the best of the kitchen sorts for trophy groups are *Hollandbury*, *Lewis's Incomparable*, *Mère de Menage*, *Golden Noble*, *Winter Pearmain*, *Forge*, and *Formosa*.

Turning to the PEARS, the undermentioned may be selected with great advantage from the list of those which attain maturity during December and January. *Beurre d'Anjou*, a large fruit handsome in appearance and of first rate quality; it commences to ripen in November, and may usually be had in perfection during the two following months. *Beurre d'Aremberg* is perhaps more useful than the preceding, as it is more productive, succeeds admirably as a pyramid, and is at its best at Christmas. *Beurre Bachelier* is another excellent pear; the fruit is large and of fine quality, and the tree an abundant bearer as a pyramid. *Beurre de Jonghe* is a most delicious fruit, of good appearance, and can be highly recommended for situations favourable to the pear. The *Chaumontel* is perhaps one of the best of the Christmas pears, for the fruit is large and handsome, of splendid quality, and the tree a capital bearer. *Forelle*, or *Trout pear*, is unquestionably the most handsome of the series; the fruit is about medium size, very rich and buttery, and is of a bright yellow with brilliant crimson cheek on the sunny side, and beautifully spotted with deeper crimson. *Glou Morceau* is by no means so attractive as the preceding, yet it is exceedingly good in quality and most deserving of cultivation. *Hacon's Incomparable* is another good variety, and can be recommended for planting where room can be found for a large collection. *Knight's Monarch* is perhaps one of the most valuable pears for the new year, as it is of the finest quality and the tree is most productive, either trained to walls or as pyramids. *Winter Nelis* is rather small, but the tree is an excellent bearer, and the flavour so rich that it can be strongly recommended. *Zéphirin Gregoire* may also be commended for its good quality, but it is hardly required with so many first-class varieties to select from.

WINTER BERRIES.



WHEN visiting Ware's Nursery, at Tottenham, lately, I was agreeably surprised to find a great bed of hardy arums, completely covered with short club-like spikes of the most brilliant scarlet berries, and it at once struck me that these arums would answer admirably to fill up as ground-work in a bed I have devoted to berry-bearing shrubs, expressly for a cheerful effect at this dull time of year. Perhaps not many of our readers would care to lay out one large bed, much less a series of beds, for such a purpose; but I am satisfied the matter is worth serious consideration, because from November to April the berries hold pretty well, of course being thinned by the thrushes from the very first, and their appearance is so distinct

and fine that a good group of berry-bearing shrubs should constitute a prominent and powerful feature in a garden.

The idea may be supported by three arguments at least, and our readers may be left to discover as many more as they please. Firstly, then, such a bed or group of beds, when once properly planted, need not cost a penny in money, or an hour in time, for any kind of renovation beyond weeding, in the course of a dozen years or so. Secondly, the distinctive beauty, that is to say, the brilliant berries displayed in grand profusion, gives us delight when flowers are past, and warms the face of the dull-complexioned winter. Thirdly, the beds occupied with the berry-bearing shrubs may be made gay with flowers all the summer, and therefore they are not to be regarded as winter beds solely.

Now we come to the consideration of the stuff suitable for these beds, and it will occur to many readers that the "hips and the haws" are the very things wanted. In a certain sense that is true, but the common hawthorn and its varieties, equally with all the wild roses, are unfit for the purpose now in view. We shall, indeed, begin with a thorn, and it shall be the brilliant *Pyracantha*, which, at the present time, adorns many a sunny wall with a profusion of its vermilion scarlet fruits. It is a fact known to very few that this evergreen thorn makes a very telling bush or standard, and as it succeeds in this form perfectly on the cold clay of our Stoke Newington gardens, it may be expected to do equally well almost everywhere on the southern side of the Trent. We allow the trees to grow in as nearly a natural way as possible, supporting the leader with a sufficient stake, and pinching in all the young growth in the middle of June, to promote a close habit. If pinched or pruned later, there is not time for the wood to ripen sufficiently to insure a good crop of berries, but superfluous and misplaced shoots may be cut out any time in the winter.

Being thus provided with a remarkably telling berry-bearing tree to begin with, we proceed to support it by planting in the same compartment the nearly evergreen and abundant berry-bearing *Cotoneaster Simmondsi*, the berries of which ripen as early as those of the *Pyracantha*, and do not fall from the tree until April.

Having secured these two very best shrubs of their class, we have plenty at command for filling in and completing a splendid group. The wide-spreading half-decumbent *Cotoneaster microphylla* produces berries in great abundance when growing in the full sun on a somewhat dry soil, and for the foreground of a group is invaluable. For the foreground in a shady place, or for an outlying border overhung with trees, we have *Skimmia Japonica*, which grows slowly, bears a wondrous crop of berries for its size, and thrives better in shade than in sun.

Thus we have secured four fine things with which a splendid effect may be produced, and if something quite different is required to separate them, with a first-class quality of winter greenery, we recommend *Berberis aquifolium undulata nana*, a variety raised by Messrs. Veitch and Son. It is the finest of all the garden berberies,

producing a neat bright green glossy leafage, which, in winter, becomes plentifully stained with fiery orange and red.

There is no dearth of berry-bearing shrubs when those named above have been turned to the best account. The very best of the aucubas for the purpose is the small green-leaved female variety, named *Aucuba Japonica fœmina vera*. This is well adapted by its glossy rich green foliage for associating in a great group of berry-bearing shrubs, but we cannot allow it to rank equal in importance to those we have placed first, because its berries do not ripen until about Christmas, and when the tree is loaded with them they do not show conspicuously. The *Pernettyas* are of course available, and *P. mucronata* and *P. speciosa* are the best. But they are not well adapted for the kind of massing we have now in view. For a certain number of them usually "miss," in other words, some of them are occasionally barren, and blanks (in respect of berries) are the necessary result. Finally, in the formation of a large group or special garden of berry-bearing shrubs, our old friend the "spindle tree" (*Euonymus Europæa*) might come in with advantage. It is not evergreen, and its berries do not hold on long, but for two months, at least, in the autumn, it is cheerfully attractive, and it has the peculiar merit of thriving to perfection in the worst of soil, and in the deepest shade of overshadowing trees. S. H.

IMPROVING THE FRUIT GARDEN.

BY JOHN SCOTT,

Merriott Nurseries, Crewkerne, Somerset.



THE later autumnal months are in every way the most suitable of the whole year for making alterations and improvements in the fruit garden, I shall not, perhaps, be required to make an apology for again reverting to such an old and well-worn theme as that of fruit culture. The subject is as old as the hills, yet there is always something to be said by observant men that is, at least, fresh, if not altogether new, in reference to it. I shall, upon this occasion, address myself more especially to those readers of the *FLORAL WORLD* who have very little ground attached to their dwellings, and are unable to spare more than a small portion of it for the production of fruit. I think that in so doing I shall be able to throw light on a few points upon which they are not so well-informed as they would wish.

It may first of all be said that in the Merriott collections we have an immense number of varieties of all our hardy fruits. We have, for example, no less than 1200 varieties of apples, 1800 varieties of pears, and a proportionate number of all the other fruits which are grown in the open air in this country. This is not said for the purpose of pushing my business, but rather to show that I have an ample opportunity for arriving at correct conclusions respecting the merits of the varieties in cultivation. There are some advantages in having a large number of sorts of any of the fruits that could be

mentioned. Of this there can be no doubt, for it renders it possible to have a continuous supply from the earliest moment it is obtainable, until quite the end of the season, which, in the case of apples and pears, continues until far into the following year. I am not going, notwithstanding this, to recommend the planting indiscriminately of large collections. Where there is an abundance of space at disposal they are to be desired, for, to people who take an interest in the production of their gardens, there is much pleasure in taking note of the season of the respective sorts attaining maturity, and in making comparisons of the merits of such as are ripe at the same moment. But in the case of those who can afford very little space for fruit-trees, it is in every way desirable to plant a few sorts only, and these in every case to be heavy croppers, even if they are second-rate in flavour. Those who are able to plant fruit trees by the hundred can afford to be fastidious, but those who have to content themselves with a few dozen, will, if they act wisely, consider first of all whether the trees are heavy and certain croppers, as well as being of fine quality. Let us, for example, consider the case of those readers who have only room for half-a-dozen trees or so. To them it will be of more importance to plant trees that will produce a plentiful supply of fruit of fair quality every year, than it will be to have a moderate crop of fruit of the highest degree of excellence every second or third year. Or, to speak more plainly, it will be better to harvest a heavy crop of Victoria plums annually, than a crop of Jeffersons occasionally. This is my opinion upon this point, and I feel assured those who have given the matter proper attention, will readily endorse it.

I would also advise the planting of trees that will, in the ordinary course of things, produce fruit worth the gathering, as distinguished from the miserable little toys which have been so strongly recommended by interested writers. If it is desired to have a large number of trees in a limited space, small bushes or pyramids must be planted, but where plenty of fruit is aimed at, the trees must be large enough to produce a crop. They need not be tall standards, which when full grown will be big enough to smother everything else in the garden, but pyramids or bushes with sufficient vigour in them to attain a height ranging from six to ten feet, and a diameter at the base of from five to eight feet. From these trees the cultivator may reasonably expect to fill the fruit-room each season. Therefore, begin with healthy trees averaging four feet in height, and well furnished with medium-sized and well-ripened shoots. Trees of this description will soon push out roots into the new soil, and if they are set with bloom buds will bear a crop the next year; and most trees of the size here mentioned will, if they have been transplanted annually in the nursery, be mostly set with bloom.

In selecting trees, all that have a hide-bound appearance must be avoided, for it is an indication of their having been partly starved. It is supposed by many inexperienced persons, and asserted by those who know better, but are unable to produce trees full of health and vigour, that trees which have been grown in a starving soil

give better results when planted in one of a more generous description, than those from a good soil. But nothing could be further from the truth, for these half-starved things never develop into buxom trees capable of producing heavy crops. I could give you the reasons without difficulty, but a simple statement of the fact will no doubt serve all practical purposes. Standards are in some cases admirable in small gardens; especially are they useful for planting in shrubberies a short distance from the house. They stand out boldly from the shrubs, and certainly are as attractive as the majority of deciduous trees at all seasons of the year; but when in bloom, or loaded with fruit, they will bear a most favourable comparison with the choicest of our ornamental deciduous trees.

To insure the highest degree of success the trees must be planted early, and early planting necessitates an early purchase. I would, therefore, recommend their being bought at once, even if they are not delivered for a fortnight or so. The roots must be carefully protected during the journey, and if possible the ground should be ready for their reception. They can then be planted immediately they come to hand, and the risk of their being injured through an undue exposure of the roots to the light and air will be most effectually guarded against. The soil most suitable for fruit trees of all kinds is a deep and rather holding loam, but those who have gravelly or sandy soils to deal with, must do their best to improve them by the addition of loamy soil, if available. Especially should they place a little fresh soil about the roots, when the trees are planted. But as few soils are either so light or so heavy that fruit cannot be successfully produced, it will not often be needful to incur a heavy expense in the preparation of the soil.

I have no wish to enter into the details of fruit culture at a great length, but I would observe that in small gardens it is preferable to plant the trees by the side of the walks in the kitchen garden, as they then take up very little space, and enjoy full exposure to both light and air. For large pyramids a space of eight or ten feet should be allowed between each tree, but those of smaller size may be planted closer together.

Excessive pinching is very injurious to the trees, as it checks the natural flow of the sap, and invariably ends in the trees being furnished with weak and ill-ripened wood, from which it will be useless to expect good crops. Continued stopping will, in the course of time, cause the death of the tree, and, therefore, it is a good friend to the nurseryman; but I do not like to obtain my livelihood at the expense of the world's credulity. The strongest shoots will require stopping once, say about the middle of June, and all other pruning should be left until the winter.

The following varieties are all remarkable for productiveness, and can be recommended to those who are desirous of obtaining heavy crops of fair quality:—

APPLES.—*Ashmead's Kernel*, *White Astrachan*, *Blenheim Orange*, *Beauty of Wilts*, *Keswick Codling*, *Court Pendu Plat*, *Ecklinville Seedling*, *Yorkshire Greening*, *Golden Winter Pearmain*, *Man-*

nington's Pearmain, Kerry Pippin, Devonshire Quarrenden, Syke House Russet, Reinette Jaune Tardive, Winter Pearmain.

CHERRIES.—*Black Tartarian, May Duke, Early Prolific, Late Duke.*

PEARS.—*Jargonelle, Williams's Bon Chretien, Louise Bonne of Jersey, Beurre Deil, Urbaniste, Thompson's, Passe Colmar, Chaumontel, Glou Morceau, Beurre Rance, Monarch.*

PLUMS.—*Early Prolific, Smith's Orleans, Victoria, Oullin's Golden Perdrigon, Violet Hatif, Prince Englebert.*

HOW TO KEEP LATE GRAPES.

BY GEORGE SMITH.



PERHAPS it may be useful to many readers of the FLORAL WORLD to know that ripe grapes may be kept in the most perfect condition for a very considerable period after they are removed from the vines. It is a very simple matter, this keeping grapes with the ends of the stalks, or, more properly speaking, the end of the lateral, inserted in a bottle filled with water, although some writers would fain have us believe that it was full of difficulties. The laterals upon which the bunches are borne are cut off about six or eight inches below the junction of the bunch, and then inserted in bottles filled with water. Ordinary soda-water bottles are the best, and to maintain the purity of the water, a lump of charcoal should be put in each before or after they are filled with water, and, for the sake of greater security, they should be suspended by means of rather stout copper wire. An ordinary fruit room will be in every way suitable for the grapes, but a dry room, from which the frost can be excluded in the dwelling-house, is, perhaps, the most to be desired. Where the number of bunches is large, it will be found more convenient if a few stout pieces of wood are fixed across the room at a convenient height to hold the bottles. There are two essential points in keeping grapes by this system; one is, to leave all the wood beyond the bunch, and the other, to put the end of the stalk in the water immediately it is separated from the vine. The only attention required afterwards consists in examining them occasionally, and removing all berries that evince traces of incipient decay, and in keeping the room dry and excluding the frost. The atmosphere must not be too dry, or the berries will shrivel; and, on the contrary, if too moist, a portion will become mouldy, and soon spoil the bunch.

The grapes may be kept by this system for a long time; as long, in fact, as they can be kept upon the vines. They are not improved, although they are not deteriorated, by being kept in water. Nevertheless, a knowledge of the system will be found of immense value in all gardens in which grapes are grown. By cutting now all grapes that will be consumed before Christmas, the vineries can be filled with bedding or other half-hardy plants; and by cutting the later crops soon after Christmas, the vine can be

pruned, and receive their winter dressing before the sap begins to move, and all risk avoided of their suffering from a loss of sap as soon as they begin to grow, which is technically known as "bleeding." For example, where grapes are grown in a greenhouse, they can be cut, and the greenhouse filled with plants, without any of the worry incidental to keeping a crop of grapes in good condition in a house filled with plants, requiring water at intervals.

The *Alicante*, *Lady Downes'* *Seedling*, and other late keeping grapes, should be grown more generally than is at present the case, for they may be had in perfection from Christmas to the end of March, when the choicer kinds of fruits are, it need hardly be said, very rare and most expensive. As new vineries are now being planted, a word by way of reminder will, perhaps, be useful. The above-mentioned are the two best black varieties for late work, and the best white sort is the *Muscat of Alexandria*, which requires more heat and greater skill to bring to perfection than either of the others. *White Lady Downes* is also said to be useful as a white grape for hanging until after Christmas, but it is inferior to the black sorts, which are, as a rule, the most generally appreciated. Unless the *Muscat* can be grown, no white sorts should be planted for consumption after the above-mentioned season.

ROSE HEDGES IN THE SOUTH OF FRANCE, ETC.



IN our last excursion from Marseilles to Genoa, we were greatly struck, as anyone seeing them for the first time would be, with the magnificence of the roses all along the Mediterranean shores. The rose hedges, and the espalier roses especially, offer an indescribably gorgeous sight. Under the genial influence of the warm sun of Provence, from the Corniche to the extremity of the Riviera di Ponente—that is, as far as the Gulf of Genoa—and protected to the north by the mountains, which gradually slope down to the sea-coast, roses attain the size of pæonies, and develop a depth and brilliancy of colour and a richness of fragrance of unusual intensity.

But this is in part due to another cause, or rather two other causes, which lead to the same result, the main point being the choice of suitable subjects for stocks to graft upon.

These stocks are *Rosa Banksiæ* and *Rosa indica major*.

The Banksian rose presents three varieties, namely, *White Banksian*, producing a profusion of small white flowers, scarcely so large as those of the double-flowered cherry, and of a most delicious fragrance; *Yellow Banksian*, with still larger clusters of small nankeen-yellow scentless flowers; *Chinese thorny Banksian*, flowers less numerous and about three times as large as in the two preceding, and of the most grateful odour. These three forms attain an unsurpassable vigour in this region. In two years one plant will cover an immense wall, the gable of a house, or climb to the top of a tall tree, from which its branches hang like flowery cascades, embalming the air around with a rich perfume during the months

of April and May. Now, if these be taken for stocks upon which to bud some of the choicer *Teas*, *Noisettes*, and *Bourbons*, the growth of the latter will be prodigious. The stock should be two years old, having well-ripened, though still smooth, wood. In this way such varieties as *Gloire de Dijon*, *Maréchal Niel*, *Lamarque*, *Safrano*, *Chromatella*, *Aimé Fibert*, *Le Pactole*, and all the teas, attain such dimensions as to be no longer recognizable.

Rosa indica major is almost naturalized throughout the whole of this region. It possesses the additional claim to favour of flowering nearly all the winter, forming beautiful hedges of dark green shining foliage, from which thousands of clusters of lovely flowers rise, of a tender delicate transparent pink, or almost pure white, with a brighter tinge in the centre and at the tips of the petals. This rose is an evergreen, and makes an excellent stock for grafting or budding.

It is either planted in nursery beds, where it quickly throws up a stem suitable for standards, in the same way as we employ the dog-rose, or in hedges, and left to its naturally luxuriant growth to produce its own charming flowers in rich profusion; or rows of cuttings are put in where it is intended to leave them, and subsequently budded with some of the varieties of the diverse tribes we have named.

We admired it most when treated in the manner last indicated. In the Gardens of the Villa Lizerbe, Nice, the residence of M. Cazale, we saw three or four long hedges reared in this way; and on the sixth of May they presented a most gorgeous feast of flowers. To give only one instance, we plucked, at random, a flower of *Gloire de Dijon*, which measured five and a half inches in diameter, and sixteen and a half in circumference. And it would not have been difficult to find even larger flowers.

This is how the intelligent head-gardener, M. Guichard, obtained such splendid results. The soil where the hedge was to be made having been moved to the depth of more than three feet, was planted towards the end of winter with cuttings of well-ripened wood of *Rosa indica major*, about nine inches apart. They were left to grow as much as they would, and not cut back at all. In August they were budded nearly close to the ground, and in the following year already they formed a hedge producing flowers abundantly. Iron wire stretched upon slender bamboo stakes is sufficient to support the branches. Pruning is only resorted to to keep them in shape, remove exhausted branches, and shorten gross shoots. This rose is also easily propagated by pegging down long branches or slightly covering them with earth, cutting them asunder at the joints when rooted, and thus obtaining as many plants as there are joints.

By this very simple process M. Cazale has succeeded in raising his rose hedges of incomparable beauty. From these hedges wagon-loads of flowers might be cut every year. It is the varieties which flower in winter, amongst which *Safrano* is the very best, that are here propagated on a large scale. We particularly noted *Souvenir de la Malmaison*, *Chromatella*, *Gloire de Dijon*, *Général Jacqueminot*, *Maréchal Niel*, *Safrano*, and *Gloire des Rosomenes*. A large number of others grew and flowered equally as well as the foregoing. In

conclusion, we recommend *R. indica major* as a stock wherever the winters are not very severe, and where earthing up or covering around the base is sufficient protection to secure the advantages of this vigorous-growing species for this purpose.—*Illustration Horticole.*

THE GARDEN GUIDE FOR DECEMBER.

“And after him came next the chill December :

Yet he, through merry feasting which he made,

And great bonfires, did not the cold remember ;

His Saviour’s birthe his mind so much did glad.

Upon a shaggy-bearded goat he rode,

The same wherewith Dan Iove in tender yeares,

They say, was nourisht by th’ Iæan Mayd ;

And in his hand a broad deep bowl he beares,

Of which he freely drinks an health to all his peeres.”

SPENSER.



HE only flowers likely to be met with during the month are the fragrant coltsfoot, the Christmas rose, and the winter aconite. In mild winters and in sheltered situations, there will be an abundance of sweet violets, and the bedding violas will also present bits of colour.

To make up for the deficiency of flowers, we have the berries of the pyracantha, skimmia, and other shrubs, which, if not attacked by the birds, present a most brilliant appearance during the month.

The garden work of December differs so little from that of last month, that it requires no special comment. To avoid hurry and confusion hereafter, all work that can be done now should have attention at once.

FLOWER GARDEN.—All ground work should be pushed on as fast as circumstances will permit, to enable it to get thoroughly settled before spring. This is a very good time to form fresh lawns, and lay down turf. Deciduous trees and shrubs may be planted during the early part of the month with reasonable chance of success ; but unless the planting can be finished quickly, it will be well to leave it until the spring. All unoccupied beds and borders should be dug up, and the surface left rough, to enable the weather to act upon it. Clear the shrubbery borders of leaves, to prevent their being blown about with every gust of wind, and littering the walks and grass-plots. Protect tea and other tender roses with dry litter or fern ; but where they are growing in a prominent position, this system of protection will be objectionable ; and, instead of adopting it, take the plants up carefully, and lay them in by their heels in a sheltered corner, and cover with litter or fern. These can be planted again early in March, and will, if handled carefully, scarcely feel the shift.

GREENHOUSE.—To keep the usual stock of greenhouse plants in health during the winter, maintain a comparatively dry atmosphere, which must be regularly changed by opening the ventilators on all favourable opportunities ; and if there is any danger of the temperature falling too low, apply a little fire-heat during the time the

ventilators are open. To economize fuel, as well as for the sake of the health of the plants, cover the glass with thick canvas, mats, or frigi-domo, during very sharp frosts, to prevent the escape of the heat. Water early, and choose a clear, bright day for that purpose. It will be better to let the plants be dry for a day or two, than water them in damp weather. Cyclamens, and single and double primulas, now coming into flower, must have the warmest corner the house affords. Look sharp after green-fly, and fumigate immediately it makes its appearance. Remove every decayed leaf, and keep everything as clean and sweet as circumstances will permit.

STOVE.—Nothing must be done to excite any of the occupants unnecessarily, just now, or the summer growth will be poor and weak in consequence. Attend carefully to ferns, especially the delicate kinds, like the *Gymnogrammas*, *Nothochlœnas*, and *Cheilanthes*, the fronds of which soon decay if wetted frequently, or exposed to a damp atmosphere. All kinds should be kept as quiet as possible. Sometimes the close-growing *Selaginellas* will rot at this season; and the best way to stop its progress is to clear away the decayed portion, and then sprinkle the plants with dry sand, and place them in a dry position near the glass for a short time.

KITCHEN GARDEN.—Draw a little earth to the autumn-sown beans and peas now peeping through the ground, and keep a sharp look-out for mice, which are very busy just now, and trap them directly they make an appearance. In very sharp weather, cover celery with long litter, for it soon rots in the centre after it has been frozen. Take up a supply of Jerusalem artichokes and parsnips for immediate use, and place in the root-house, and cover with dry sand or soil; but the principal bulk should remain in the ground for the present, as they are firmer, and eat more mellow than when taken up at the beginning of the winter, and stored in the root-house. Frosty weather must be taken advantage of for wheeling manure on vacant quarters; and when the weather is unfavourable for out-door work, overhaul the root stores, and remove all that exhibit the least signs of decay from contact with that which is sound.

FRUIT GARDEN.—Pruning of all fruit-trees, excepting the peach and nectarine, must be commenced in earnest. Lay in no more wood than is really required, for nothing is gained by over-crowding, but much lost. Wash apple-trees infested with American blight with strong brine, but avoid damaging either fruit-buds or wood-buds. See that trees planted last month are properly staked, and cover the soil immediately over the roots with six inches of half-rotten stable manure, to prevent the frost loosening it.

PITS AND FRAMES.—Violets must be protected in cold and frosty weather, but draw the lights off entirely whenever the weather will admit of its being done with advantage. Auriculas, carnations, pansies, pinks, and picotees, must have a free circulation of air about them at all times, excepting when the weather is very damp or frosty. A few degrees of frost will not do so much injury as a stagnant atmosphere. The early-potted hyacinths and other Dutch bulbs should be uncovered at once, and exposed to the light.

Remove successive batches to the forcing-pit, the temperature of which should now average 60°. Syringe flowering shrubs overhead slightly once a day, to enable the buds to push strong.

FORCING.—Roots of rhubarb, seakale, and asparagus, may now be lifted, and introduced into heat. The first must be taken up without the roots being broken about, and with as much soil adhering to them as possible. The roots can be placed in any out-of-the-way corner of the stove or forcing-house. Seakale must be forced in the dark, but asparagus should be forced in a frame, close to the glass, and receive abundance of air to develop the flavour. Sow French beans in small pots, and shift into larger ones as soon as they are well rooted. Place near the glass to keep them dwarf and stocky.

NEW BOOKS.

The Flora of Dorsetshire, by T. C. M. PLEYDELL, B.A. (Whitaker), is an excellent example of the painstaking care with which local floras are now prepared. It is a neat octavo volume, containing a good map and a full index, and the list of plants is preceded by useful essays on the geology, climate, and special characteristics of the county, which, most of our readers are aware, is specially favoured in respect of plant production by its nearness to the coast of France, and the warm sea that forms its southern boundary. We can strongly recommend this work to all who are interested in the subject of which it treats, for we have already referred to it in the hope of clearing up knotty points, and have found it trustworthy and copious in its information.—SPOONER on *The Sheep, its History, Economy, and Diseases* (Lockwood), has reached a third edition, and is now established in public estimation as the best book on the important subject of which it treats. The present edition is prettily illustrated from drawings by Harvey.—*Haydn's Dictionary of Dates* (Moxon) is now in course of publication in a new form, the whole of the work having been corrected and enlarged, and brought down to August, 1873. It will be completed in sixteen shilling parts. A work so indispensable to persons of culture needs but to be mentioned to obtain the instant attention of those who are not so fortunate as to possess it already.—*The Garden Oracle* for 1875 contains a new and carefully-prepared selection of hardy herbaceous and alpine plants, arranged for various uses in the amateur's garden. Thus we have a selection for the show border, comprising the best of the lilies, tritomas, asters, etc., that are valued solely for their showy flowers. A selection for the alpine house, comprising a number of rare gems that flower in winter and early spring. Selections for the water garden, the rockery, the very shady border, the starving sunny bank, and the exhibition tent. The descriptions of new plants, flowers, fruits, etc., are restricted to such as are thoroughly meritorious; and the selection of seeds, plants, fruits, bulbs, etc., for 1875, are arranged with a view to insure for the amateur first-class productions that are not covered by extravagant novelty prices.

HORTICULTURAL AFFAIRS.



ROYAL HORTICULTURAL SOCIETY'S EXHIBITION OF CHRYSANTHEMUMS AND FRUIT, Nov. 11.—The past season has been especially favourable to the Chrysanthemums, and all the exhibitions held last month were unusually good. The exhibition of the Royal Horticultural Society on the above-mentioned date was no exception to the general rule, and it may be considered by far the best exhibition of its kind ever held under the direction of the Society. The whole of the classes were exceedingly well filled, and the majority of the plants staged were large and exceedingly well furnished with fresh healthy leafage and grand flowers, and the cut blooms generally were remarkable for high quality. The display of fruit formed a most important feature of the show, and received a fair share of attention from the visitors. Pines and Grapes were fairly represented, and the entries included a considerable number of superb samples. Apples and Pears were contributed in immense numbers, amounting in the aggregate to upwards of 1200 dishes, and in combination formed a very interesting and most beautiful display of themselves. Vegetables were represented by large collections of Cabbage, Beet, and Potatoes from Messrs. J. Carter and Co.; a large and complete collection of Celery, from Messrs. J. Veitch and Sons; and a magnificent collection of Potatoes, comprising 132 varieties, from the gardens of the Society at Chiswick. The specimen Chrysanthemums were staged in sufficient numbers to fill both sides of a broad stage, erected under the centre of the great conservatory. In the open class for twelve large flowering varieties, the first prize was awarded to a collection from Mr. James, gardener to W. F. Watson, Esq., Redlees, Isleworth, who presented medium-sized specimens, grandly flowered and superbly finished, of Mrs. Haliburton, Mrs. G. Rundle, Eve, Lord Derby, Faust, Prince Alfred, Pink Perfection, Empress Eugénie, Antonelli, Golden Eagle, Jardin des Plantes, and Julia Lagravère. Messrs. W. Cutbush and Son, Highbgate, were second with, amongst others, large and exceedingly fine specimens of Mrs. G. Rundle, George Glenn, a beautiful pale yellow sport from the variety immediately preceding it; Her Majesty, Gloria Mundi, Prince of Wales, Princess Louise of Hesse, Mrs. Sharpe, and Christine. Mr. J. Herrington, gardener to J. Price, Esq., Thornton Road, Clapham Park, third, with fine specimens of Rev. J. Dix, Mr. Brunlees, Alma, Garibaldi, Mrs. Haliburton, Antonelli, and Prince of Wales. Cut Blooms were plentiful, and made a good display. The first prize for twenty-four incurved flowers was awarded to Messrs. W. Cutbush and Son, who staged beautiful blooms of General Hardinge, Lady Slade, Prince of Wales, Antonelli, Princess of Teck, Empress of India, Mr. Howe, Nonpareil, Mrs. Marchaux, Themis, Mrs. Heale, Le Grand, Hero of Stoke Newington, Cherub, Plenipo, John Salter, Jardin des Plantes, Princess Beatrice, Isabella Bott, Nil Desperandum, Mrs. Cunningham, Mrs. Haliburton, Lady Talfourd, and Queen of England.

THE CHRYSANTHEMUM SEASON of 1874 will long be remembered by growers as one of the best of recent years, and certainly in no season have the claims of these noble autumnal flowers been more thoroughly vindicated. The exhibitions have been increased in number, and those of established societies have seldom been so good. To particularize the exhibitions of the societies more space would be required than can be afforded; and it must suffice to say that grand specimens and magnificent blooms were the rule, and inferior productions the exception. As will be seen by the report of the Royal Horticultural Society's exhibition, our able coadjutor, Mr. James, of Isleworth, was successful in winning the first prize in the great class for twelve specimens open to all comers, at the most important meeting of the year.

THE FIRST TRIAL OF POTATOES, under the arrangements devised by the Royal Agricultural Society, when it withheld Lord Cathcart's premium for a prize essay, and began to search for "disease-proof potatoes," has been reported on. The result is that none of the varieties sent in for trial have resisted the disease, and the competitors are liable to a penalty of £20 each all round. The penalty will not be enforced.

THE FONTAINEBLEAU GRAPE TRELLIS.—According to the *Moniteur Horticole Belge*, the famous trellis of Fontainebleau, whence all the Chasselas Grapes of that neighbourhood originated, was formed in 1531 by Francis I., with plants obtained from the town of Cahors. A gardener of the same town superintended the plantation.

THE IMPERISHABLE STRATFORD LABELS are now manufactured by Mr. J. Smith, Label Factory, Stratford-on-Avon. The samples lately sent us are beautifully finished, the lettering being so boldly produced that wearing out is not to be thought of, and a coating of fifty years' dirt could not interfere with their legibility. We must give these the palm before all other plant-labels as the very first in merit, while they are astonishingly cheap.

INTERNATIONAL POTATO SHOW. — It is intended to hold an international exhibition of potatoes at Lyons next year, in connection with the great meeting of the Cercle Horticole Lyonnais. The schedule will provide for six classes, and the premier prize will be a silver cup, to be awarded to the competitor who shall have produced the largest and finest crop from one tuber. The judges will consider quality and quantity as of equal importance.

THE LOUDON CLUB has been proposed for affording a common centre for those interested in horticultural pursuits. It is contemplated to establish it in a central position near Charing Cross, and, as far as practicable, it will afford its members the conveniences and facilities of a West End club. Several gentlemen well known in the horticultural world have consented to act on the Council, and at a meeting recently held in St. James's Hall for making rules, and arranging other preliminary matters, a long list of names of gentlemen desirous of becoming members was read. A subscription of two guineas per annum for country members, and a trifle more for town members, is contemplated, but this point is as yet not settled.

CALIFORNIA IS SUCCEEDING ADMIRABLY AS A GRAPE-GROWING REGION, this season's vintage being placed at 10,000,000 gallons, against a yield of 4,000,000 gallons in 1873, and 2,500,000 in 1872. At the same rate of increase she would soon become one of the greatest grape-growing countries in the world.

RESPIRATION AND NUTRITION OF PLANTS.—M. Corenwinder has, says *Nature*, contributed to a recent meeting of the Société des Sciences de Lille an exhaustive series of observations on the processes of Respiration and Nutrition in Plants. He supports M. Claude Bernard's view, that the process ordinarily known as the respiration of plants—the decomposition of the carbonic acid of the atmosphere—is really a process of digestion, and that simultaneously with this plants carry on, by day as well as by night, a true process of respiration, similar in all respects to that performed by animals, consisting in an oxidation of the carbonaceous matters of their tissues. By a very careful series of analyses, performed mainly on the Lilac and Maple, M. Corenwinder determined that the proportion of nitrogenous matter in the leaves gradually and progressively diminishes from the time that they emerge from the bud till their fall, the proportion of carbonaceous matter increases very rapidly during April and May, and then remains nearly stationary till October; while that of the incombustible substance increases during the whole period of vegetation. He distinguishes, therefore, two periods in the vegetative season of the plant. The first period, when nitrogenous constituents predominate, is that during which respiration is the most active; the second, when the proportion of carbonaceous substance is relatively larger, is the period when respiration is comparatively feeble, the carbonic acid evolved being again almost entirely taken up by the chlorophyll, decomposed, and the carbon fixed in the true process of digestion.

MESSRS. J. CARTER AND Co. announce their intention of offering for competition at the meetings of the R.H.S. a series of prizes for vegetables, as in previous years. The fifty guinea "Carter Cup," with money prizes of £10 10s., £7 7s., £5 5s., and £3 3s., will be offered for competition at the provincial meeting of the Society, and it is to become this year the absolute property of the employer whose gardener wins it.

A DIRECTORY OF BOTANISTS, comprising lists of gardens, and directors of gardens, and professors and curators of the whole world, has been published under the superintendence of Professor Morren, at No. 1, Boverie, Liège. It contains the names and addresses of about 750 botanists.

THE PEACH HARVEST at Montreuil in 1874 has, says the *Moniteur Horticole Belge*, been exceptionally abundant, and the gross produce has been estimated at two millions of francs. There are at Montreuil 600 growers, who have gathered sixty millions of Peaches. During one month, 500,000 Peaches arrived every morning at the Halles Centrales of Paris.

TO CORRESPONDENTS.

E. F., Darlington.—It is impossible to tell you what to do with the Begonias without knowing to which class they belong. If they belong to the ornamental-leaved section, they must be kept quite dry during the next two months, in a light position, and quite safe from frost. If they belong to the section grown for their flowers, and have tuberous roots, dry them off, and place in a dry store-room where the frost cannot reach them. Those grown for their flowers, which have no tuberous roots, require to be kept rather dry, and in a warm temperature. It will be difficult to keep them safely through the winter in a sitting-room. The operation referred to should be performed some time during the winter season.

E. H. T.—The tree onion may be obtained at any of the principal seed-houses. Try Messrs. J. Carter and Co., 237 & 238, High Holborn, W.C. The calceolarias in the sitting-room will require to be kept rather moist at the roots, and free from green-fly; a cold frame, with protection from severe frosts, will be the best place in which to winter calceolarias. The plant received is a "fancy" pelargonium. It will require moderate supplies of water, and a place in a light, sunny window. The varieties belonging to the fancy class are too delicate to be grown successfully in windows. They are propagated by striking cuttings of the well-ripened shoots in the autumn.

MOSSY LAWN.—*J. L. H., Manchester.*—A light dressing of the siftings of lime rubbish applied now will be beneficial; and in February next dress with guano at the rate of $3\frac{1}{2}$ lbs. to the square rod; or with nitrate of soda, at the rate of 1 lb. to the square yard; the latter should be mixed with fine soil previous to using, and then spread regularly over the surface.

POLYGALAS.—*Amicus.*—The greenhouse Polygalas are Cape plants, requiring but little care, and not worth cultivating in quantity. That they may be formed into handsome specimens may be seen at all the summer shows, where *P. Dalmaisiana*, *P. oppositifolia*, *P. cordifolia*, and *P. grandiflora*, are usually shown in collections of greenhouse plants. They require a soil chiefly consisting of peat, with a little hazelly loam added, and to get up fine specimens, the usual routine must be resorted to, of potting the plants on and stopping the shoots, to cause bushiness, until they are of the size required. The best time to repot will be after they have flowered, and the best time for purchasing early in the spring, before they have flowered.

CULTIVATION OF COB NUTS AND FILBERTS.—*Young Gardener.*—The Kentish system is a good system for gardens, because it keeps the trees down in the form of bushes, but it is generally very rudely practised. Rooted suckers are planted in the first instance; these grow two years, and are then cut down. The result of this is a vigorous shoot, and only one is wanted. This, after a season's growth, is headed back and disbudded, and at a foot from the ground, and by a regular course of pruning, a round compact head is formed. In the early stages of the pruning the future growth is alone considered, and the shoots are cut so as to promote the growth of buds directed outwards, the leader and the central shoots being removed altogether, and the tree formed to a stem not more than a foot high, and an open head not more than five feet high. When they come to bearing condition, great care is taken to preserve a certain number of the young shoots, and the sprigs which come from the part where the shoots of the preceding year were shortened, as on these are produced the female blossoms. As for the male blossoms, a certain number are of course left, but the pruning can never be effectually performed without removing a considerable number of them, and of female blossoms also. But to enable the pruner to proceed with certainty, pruning is always deferred till the spring, when the male blossoms are conspicuous.

HERBACEOUS LOBELIAS.—*T. S.*—The plants of *Lobelia fulgens* in the open ground must be taken up and potted in good fuchsia compost, with plenty of drainage. Keep them in a pit or greenhouse all winter. They must never go quite dry. In spring, when they begin to grow, divide them, and pot afresh in very rich compost, and encourage growth with extra warmth and moisture, and either shift as they require it or turn them out in rich soil in June. In some gardens they live the winter through in the open ground.

CINERARIA MARITIMA AND CERASTIUM TOMENTOSUM.—*Amateur Gardener.*—*Cineraria maritima* is a hardy plant, and on elevated positions, where the soil is chalky, it will survive the winter. But in gardens it is generally taken up and potted, with liberal drainage, and may be wintered in a frame or pit. It may be

propagated either by seeds or cuttings. The cuttings do not root quickly, but if a thousand were put in there would not be the loss of one, if in three parts sand, and only kept moderately moist. We propagate it all seasons without bottom-heat, but in April is the best time for novices. *Cerastium tomentosum* may remain out all winter, and taken up in the spring and divided. If wanted in quantities, the young tops may be struck either with or without the help of heat.

FUCHSIA QUERY.—*M. D.*—Fuchsias will come from cuttings at almost any season of the year, and from green shoots and ripe wood alike. But the best way to propagate is to cut them in and start them into growth in December; then as the new shoots are three inches long, to take them off with a heel, and strike in a mixture of sand and leaf-mould, with an inch of pure sand on the surface. We do not see that you need check the fuchsia that blooms so abundantly.

COMMELINAS.—*F. B., Leeds.*—The common and very beautiful *C. caelestis* may be kept over winter in sand, in any part of Britain, in the same way as dahlia-roots, but in the south it may be left in the open ground all the winter, if protected with a little heap of leaves. If taken up, it is best not to separate the fleshy spindle-shaped tubers, but to plant them entire in spring, when they make fine plants. If increase be an object, they may be started in a gentle heat in March, then separated and potted separately, to be planted out in May.

GRAPES IN GREENHOUSE.—*Vitis.*—There is not so much difficulty in growing grapes in a greenhouse as you imagine. You need not be frightened about it, especially as the plants you have to grow consist principally of bedding plants. Give plenty of air through the winter and early part of spring, whenever the weather is mild enough to admit of its being done. This will serve the double purpose of keeping the plants stocky, and preventing the vines breaking before there is sufficient warmth to carry them along. After the vines begin to break, keep the house rather close and warm, and throw a few cans of water on the floor during the day, to cause a moist atmosphere. Shift the bedding plants out of doors as early as possible, and then take advantage of all the solar warmth you can, by shutting up the house early in the afternoon. When the weather is very cold, after the vines get into full growth, light a fire to prevent the temperature falling below 65°; 70° would be better. Use also a little fire-heat when the grapes are ripening, if the weather should happen to be rather cold and damp at that season. That will enable you to give plenty of air to insure their colouring well, and also ripen them off before you want to bring the plants into the house for the winter. The grapes will not keep long in the autumn with plants underneath; therefore they should be cut soon after the plants are brought indoors, and suspended in a cool, dry room, with the ends of the shoots in bottles of water.

AZALEAS.—*R. Smith.*—The compost for azaleas should consist of good fibry loam one part, fibry peat two parts, and a liberal proportion of silver-sand, sufficient to make the bulk feel gritty. The peat must be good. When you repot the plants, place a good drainage of broken crocks in the bottom, and use pots large enough to allow an inch of fresh soil all round, and ram the new soil in firm. When azaleas are potted loosely, the water runs through the new soil without wetting the old ball, which soon gets so dry in the centre that the roots perish, and it is then only a work of time for the heads to perish too. Avoid giving them too much water, or letting them suffer for the want of that element. Ordinary greenhouse temperature, with plenty of ventilation, is all that they require. The thermometer should not be allowed to rise much above 50°, or fall below 40°, through the winter. The plants should remain indoors until the young growth is finished, and then be taken out of doors and placed in a shady position, where they must remain until the following September, and then be taken indoors again. Avoid placing them under the drip of trees, or they will soon be ruined. Attend to them carefully through the summer, and do not let them suffer for want of water. Hundreds of plants are ruined annually through being set out of doors and left to themselves. The greatest danger is just after rain; inexperienced cultivators fancy that a good rain is sufficient for the time, whereas it is seldom that the moisture therefrom penetrates beyond three or four inches below the surface. Ringing the pots with the knuckles is a very good way to ascertain when the plant is really wet or dry. The pots, when placed out of doors, should be stood upon bricks or smaller-sized pots, to prevent worms penetrating through the holes in the bottom.

I N D E X .

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ACHIMENES from seed, 128
 American sundew, 126
 American potatoes, 78
 Andryala mogadorensis, 8
 Annuals for beds, 80
 Anthurium Scherzerianum, 166
 Anthurium Williamsi, 157
 Aphelandras, 257
 April garden work, 121
 Aralias for conservatory, 179
 Artichoke, globe, 36
 Asphalted walks, 30
 August garden work, 252
 Auricula, culture of, 172

 Balsams for exhibition, 99
 Basket plants, 159, 160
 Beautiful shrubberies, 329
 Bedders, new, 265
 Bedders, select, 283
 Bedders for small gardens, 140
 Bedding out, 142
 Berry-bearing shrubs, 364
 Bilbergias, 200
 Books noticed, 124, 218, 314, 374
 British ferns in cases, 205
 Bromeliaceous plants, 33
 Brugmansia suaveolens, 96
 Bulbous flowers, 290

 Calceolaria, culture of, 303
 Carrot, culture of, 53
 Carnations and picotees, 31, 176
 Celery, culture of, 42
 Celery fly, 352
 Christmas apples and pears, 362
 Chrysanthemum season of 1874, the, 375
 Chrysanthemums, standards, 48
 Chrysanthemums, squat, 358
 Cockscomb, culture of, 113, 224

Cob nuts, and filberts, cultivation of, 377
 Coniferous trees, 32
 Clematis from seed, 159
 Clematis montana, 106
 Cinerarias, double, 90, 222
 Crinum moorei, 349
 Cactus, culture of, 353
 Cucumbers in frames, 224
 Cyclamens, hardy, 312
 Coleus, the Shah, 117
 Calochortus venustus, 225
 Clematis house, Rendle's, 25
 Conservatory in winter, 297
 Canna, double flowering, 29
 Cypripedium longifolium, 138
 Climax boiler, 255
 Cephalotus, culture of, 255
 Clerodendron Balfouri, 244

 Dahlias, culture of, 287
 Dahlia arborea, 158
 December garden work, 372
 Decorations, floral, etc., 6, 38, 105, 126, 212, 237, 268
 Dessert pears, 20
 Dinner table plants, 212
 Dog's tooth violet, 308
 Dracenas, 147

 Earthing growing crops, 153
 Echeverias, 193
 Egg plants, 97
 Endive, culture of, 245
 Epacris, notes on, 321
 Esparto grass, 349
 Everlasting flowers, 88
 Erythronium dens-canis, 308

 February garden work, 56
 Ferns raised from seed, 128

- Ferns for the table, 75
 Ferns for cases, 96, 205
 Fine-foliage plants, 235
 Floral decorations, various, 6, 38, 105, 126, 131, 212, 237, 268
 Florists' flowers, 31, 315
 Flowers to send by post, 103
 Frame culture of potato, 343
 Fruit garden, improvement of, 366
 Fruit, to prepare, for table, 22
 Fruit crops of 1874, 300
 Fruit crop, protecting, 73
 Fruit trees, winter dressing, 28
 Fruit trees for walls, 238
 Fruit trees on sandy soil, 63
 Fruit garden, 278
 Fruit, to store, 292
 Fungi collecting, etc., 270
 Fuchsia, Mrs. Cannell, 115
 Fuchsias grown at Chiswick, 101

 Gardeners' Benevolent Institution, 221
 Geraniums with blue flowers, 117
 Geraniums, double, 145
 Globe artichokes, 36
 Glass-cutter, patent, 29
 Gloxinias from seed, 128
 Gladiolus, culture of, 10, 103
 Grape vines, to prune, 47
 Grapes, to keep, 369
 Grass lawns, to renovate, 63
 Grasses, ornamental, 106
 Greenhouse vermin, 50, 133
 Greenhouse plants, 163
 Gum tree of Australia, 77

 Hardy plants for forcing, 323
 Heating plant houses, 344
 Hollies, selection, culture, etc., 1, 129
 Hollyhock, notes on, 44
 Honey fair, 61, 318
 Hyacinths for decoration, 259, 263
 Hyacinths done flowering, 127

 Indoor gardening, 110
 Invalid's garden, 231

 January garden work, 24
 July garden work, 216
 June garden work, 187
 June work in kitchen garden, 185

 Landscape trees, 15, 329
 Lapageria, culture of, 260
 Lasiandra, culture of, 289
 Late grapes, to keep, 369
 Late peas, 211
 Lilies, cultivation of, 11
 Lime kiln heating, 19
 Mandarin orange, 350

 March garden work, 91
 March work in kitchen garden, 69
 Marechal Niel on a new stock, 357
 May garden work, 154
 Melon, culture of, 65
 Midland Counties Exhibition, 254
 Mosses, collecting, etc., 336
 Mignonette, culture of, 159, 229

 Naturalization of plants, 286
 New Books, 374
 New Holland pitcher plant, 255
 Newly purchased plants, 239
 New ornamental-leaved plants, 235
 Night temperature of Plant-houses, 354
 November garden work, 346

 Old fashioned flowers, 136
 Oncidium papilio, 223
 Orchids for amateurs, 247

 Pansies, to propagate, 224
 Peas in dry seasons, 211
 Pears for small gardens, 20, 30
 Passion-flowers, 161
 Pelargonium Society, 317
 Pelargoniums, early flowering, 177
 Pelargoniums, fancy, 233
 Phylloxera, 285
 Pine pit, 196
 Planting under trees, 191
 Polyanthus, to propagate, 191
 Poinsettia pulcherrima, double, 138
 Potato, frame culture of, 343
 Potato catalogue, 28
 Potato beetle, 62
 Potato disease, 29, 94
 Potatoes, selection of, 71
 Pot-culture of strawberry, 203
 Pot plants for decorative purposes, 355
 Postulata flower-pot cover, 169
 Primula cortusoides, 165, 195
 Protecting fruit, 73
 Parsnips, culture of, 83
 Palms for conservatory, 86
 Palms planted out, 31
 Pyramid Chrysanthemums, 94

 Royal Horticultural Society, Exhibition of evergreens and cyclamens, 28; annual meeting, 95; spring shows, 157; exhibition of pot roses, 191; great summer show, 220; exhibition of cut roses, 254; autumn vegetable show, 317; chrysanthemum show, 375
 Rhodanthe manglesi, 146
 Rhubarb, cultivation of, 240, 350
 Roses, notes on new, 149, 326
 Rose hedges in the South of France, 370

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MAR. 70

